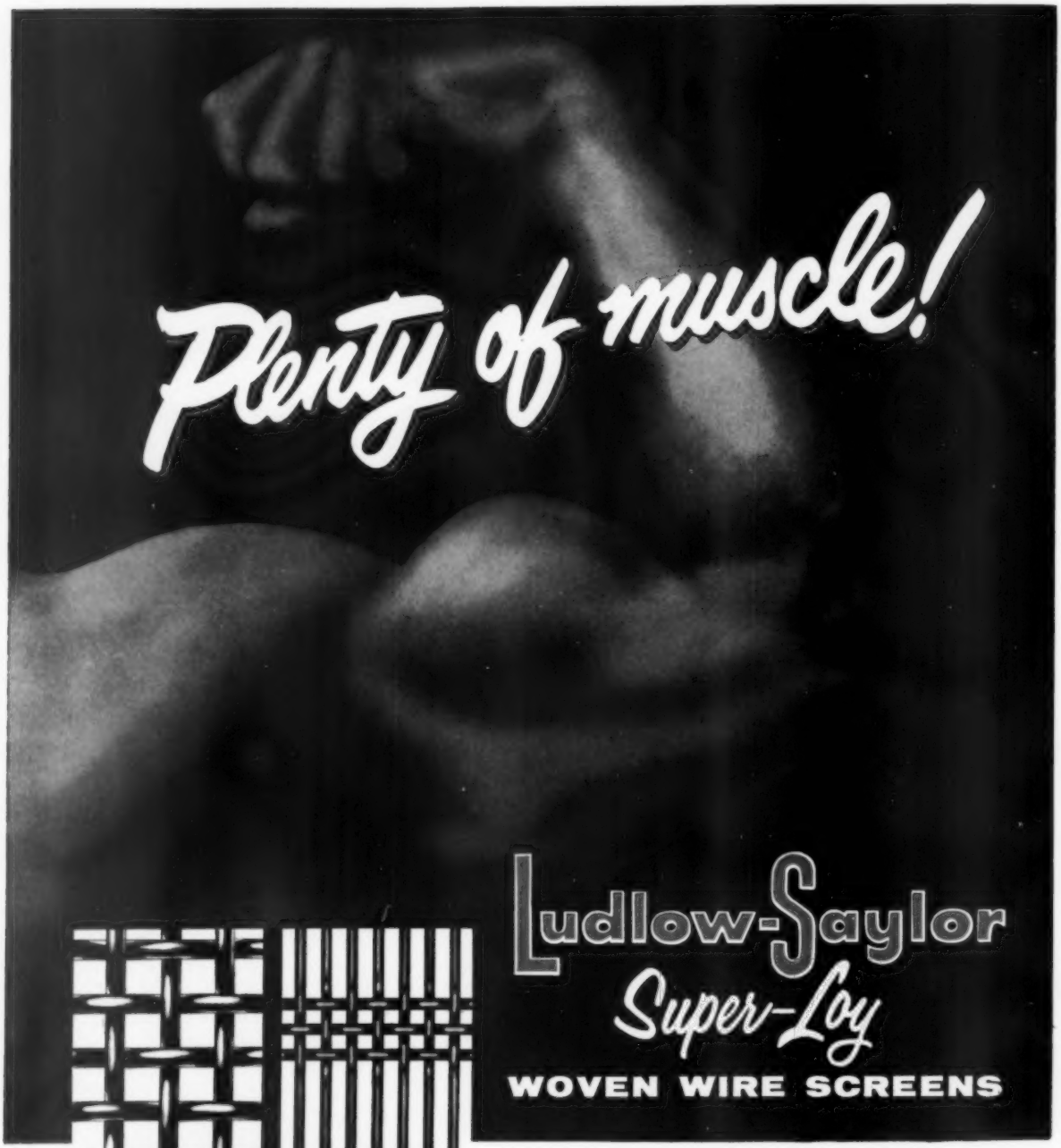
For producers of Sand nd Gravel, Crushed Stone, Cement, Lime, Gypsum, and other nonmetallic minerals

FEBRUARY 1957

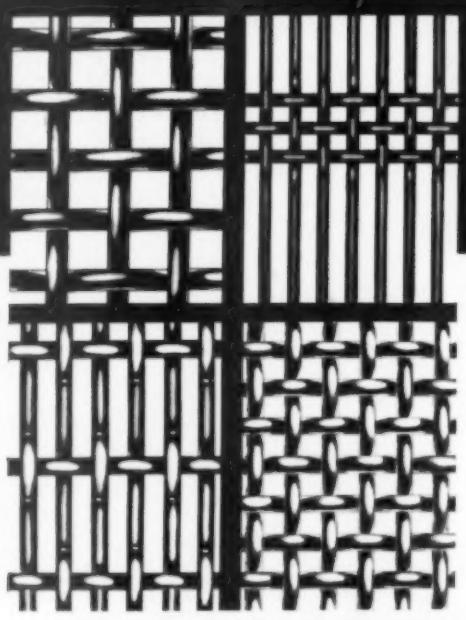
PIT and QUARRY

Table of Contents, Page 2

Oregon Portland Cement Company's Plant at Lime, Oreg., in a Winter Setting.



Ludlow-Saylor Super-Loy WOVEN WIRE SCREENS



- Superior strength and increased durability . . .
- Longer retention of screen accuracy . . .
- Greater resistance to vibration, fatigue and abrasion . . .

. . . ALL of these mean more economical, more efficient operation.

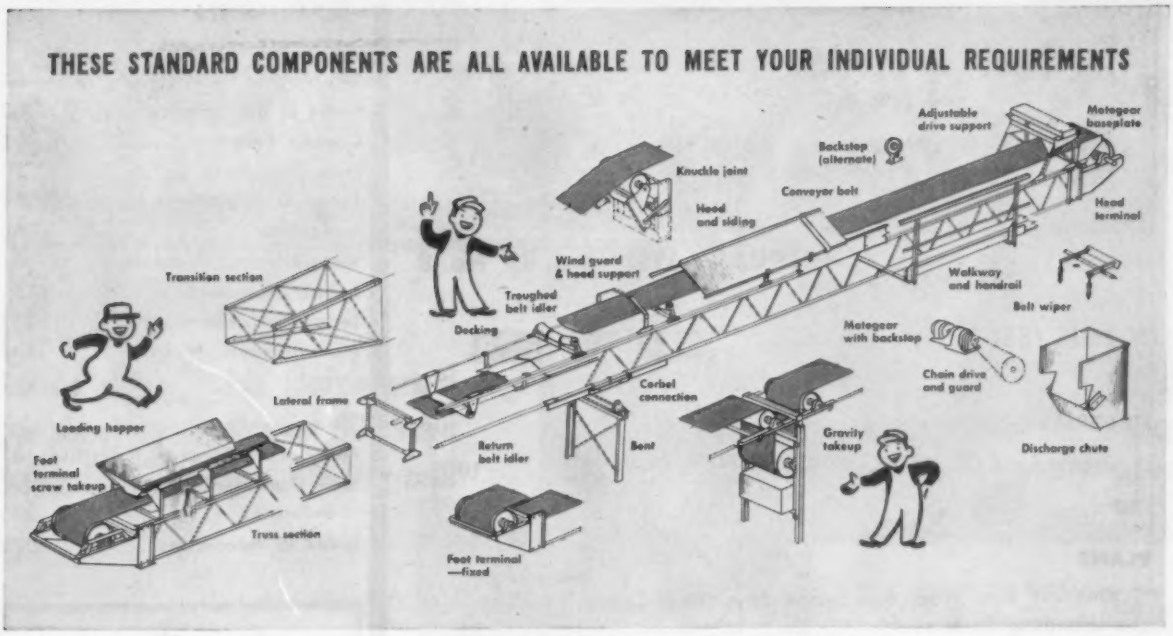
Most weaves and sizes shipped from stock.

Write for Condensed Screen Reference Catalog

LUDLOW-SAYLOR WIRE CLOTH CO.
601 South Newstead Avenue, St. Louis 10, Missouri

SALES OFFICES: Birmingham, 1727 Sixth Ave. North; Chicago, 5807 W. Diversey; Pittsburgh, Union Trust Building; Houston, 1213 Capitol Ave. Denver, 1530 Carr St.
WEST COAST: Star Wire Screen and Iron Works, Inc., 2515 San Fernando Road; Los Angeles: Subsidiary, Ludlow-Saylor Wire Cloth Co.

THESE STANDARD COMPONENTS ARE ALL AVAILABLE TO MEET YOUR INDIVIDUAL REQUIREMENTS



NOW! The advantages of engineered belt conveyors in a LINK-BELT

PRE-BILT PACKAGE

easy selection

Your Link-Belt representative will help you select the best combination of PRE-BILT sectional belt conveyor components.

Standard 18, 24, 30 and 36-inch widths need no special engineering

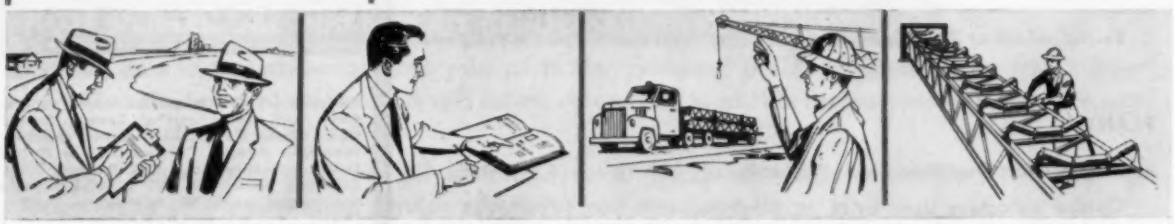
Here's an economical, standardized belt conveyor "package" . . . ready to meet the majority of belt conveyor needs and perform dependably for years and years. It combines standard Link-Belt products with sectional truss frames and steel supporting bents.

Book 2579 has further data on Link-Belt PRE-BILT conveyors . . . with drives up to 40 hp and 24 and 42-inch truss depths. Write today, or ask for a copy at your nearest Link-Belt office.

LINK-BELT

14.114

BELT CONVEYOR EQUIPMENT



prompt quotations

He will prepare a comprehensive and accurate estimate of requirements for installations that permit "on-the-ground" survey.

simplified purchase

Parts are standardized, interchangeable, all available from one supplier. Link-Belt representative can furnish all data.

quick delivery

PRE-BILT conveyors are built at nine strategic locations throughout the country and are shipped from the plant nearest you.

fast installation

Can be readily handled by your own erectors in most cases. Link-Belt can also furnish complete erection service and supervision.

LINK-BELT COMPANY: Executive Offices, Prudential Plaza, Chicago 1. To Serve Industry There Are Link-Belt Plants and Sales Offices in All Principal Cities. Export Office, New York 7; Canada, Scarboro (Toronto 13); Australia, Marrickville, N.S.W.; South Africa, Springs. Representatives Throughout the World.

PIT AND QUARRY, February, 1957, Vol. 49, No. 8. Published monthly by Pit and Quarry Publications, Inc., 431 South Dearborn St., Chicago 5, Ill. Subscription price $3 for 1 year in the U.S., possessions and Canada. Central and South America $10 for 1 year, elsewhere $15. Single Copy $.50 except $1 for January, May and July. Entered as second class matter February 28, 1932, at the Post Office at Chicago, Ill., under the Act of March 3, 1879. Postmaster: Please send notices on Form 3578 and copies returned under label Form 3579 to 431 South Dearborn Street, Chicago 5, Ill.

pit and quarry

THE BASIC MAGAZINE IN A BASIC INDUSTRY

FEBRUARY 1957 Vol. 49 No. 8

IN THIS ISSUE:

NBP ABC BPA

EDITORIAL

Quantity and Quality Will Be Required 10

PLANT

American Rock Wool Bulk System Pays Off in Lower Handling Costs 71

Star Rock Concentrates on Processing Sand and Gravel 73

Macon Quarries Company—Southernmost Crushed Granite Operation 84

Indiana's Only Expanded Shale Plant—Midwest Aggregates .. 92

National's New Slurry Preheater 102

N. Y. Plant Built to Supply Ready-Mix Aggregates 114

Summit Mining Corp.—First Eastern Sericite Mine Producing Mineral Filler 118

Dallas Firm Features Good Maintenance Plan, Reclamation ..121

TECHNICAL

A Method of Reducing Water Content of Slurry in Wet-Process Cement Manufacture 78

Engineering Opportunities in the Cement Industry 96

THE CONCRETE MANUFACTURER

EDITORIAL

Be Individual at Your Convention 185

PLANT

Progressive Milwaukee Block Producers 210

Outsize Autoclave Used by N. M. Block Maker 221

TECHNICAL

Rx Ready-Mix—Sampling and Testing Require Attention 196

Administration of Concrete Specifications 215

DEPARTMENTS

Washington News Letter 12

News of the Industry 23

Coming Events 23

New Machinery 50

Labor Developments 64

Screenings 66

More Information Please 99

Industry Personalities 128

Legal Decisions 132

Manufacturers' News 146

News of the Concrete Industries.187

New Machinery for the Concrete Industries 233

Index to Advertisers 270

Cover Picture

• Amid the snow in this scene, the conveyor at the right in this view of Oregon Portland Cement's plant at Lime, Oreg., is reminiscent of a ski slide in a winter sports area. Far more utilitarian, however, that part of the conveyor shown is the terminus of a six-flight, 5,604-ft. long system connecting the recently developed new quarry and the plant. Surge piles are established at three points in the system between the quarry and the plant, and stone can be transported at the rate of 350 t.p.h.

Published on the first of each month for producers and manufacturers of Cement, Crushed Stone, Gypsum, Lime, Sand, Gravel and other nonmetallic minerals.

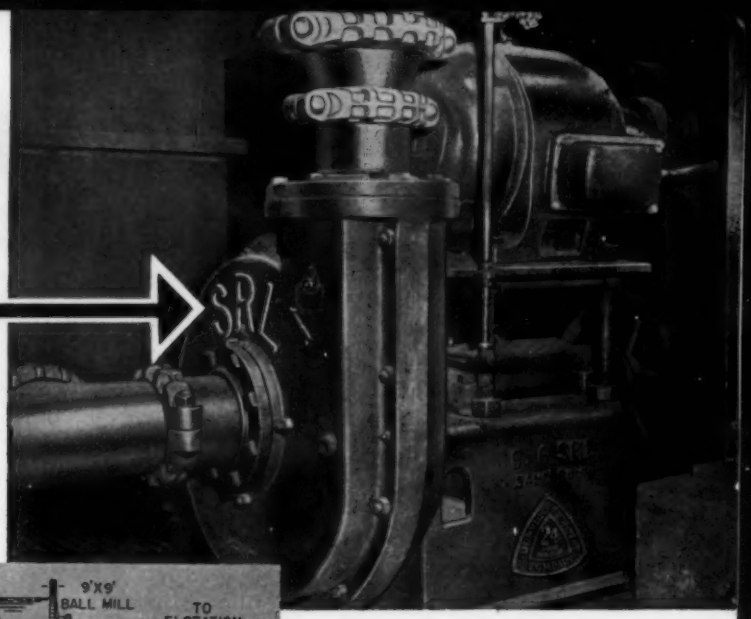
Copyright 1957 by Pit and Quarry Publications, Inc.,

431 S. Dearborn Street, Chicago 5, Illinois. PIT AND QUARRY magazine was founded by H. W. Baumgartner, October, 1916.

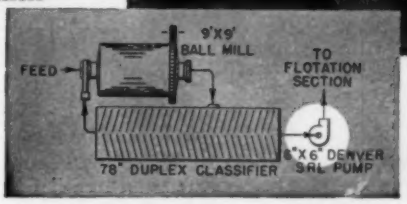
To subscribers: When requesting change of address, kindly send old as well as new address.

PIT AND QUARRY IS INDEXED IN THE ENGINEERING INDEX

DENVER SRL PUMPS AT Climax



Here's why Climax Molybdenum Company has 44 Denver SRL Sand Pumps in it's modern, efficient mill



A 6"x6" Denver SRL Sand Pump operating at 690 r.p.m., handling 2200 tons per 24 hours of —28 mesh classifier overflow material at 45% solids. Life of pump runner and casing liner was 593,000 tons.

BACKGROUND

Originally, a 2"x2" Denver SRL (Rubber Lined) Sand Pump was installed on a trial basis at Climax to handle coarse, abrasive —28 mesh deslimed pyrite flotation concentrates. Later, Climax purchased one 6"x6" Denver SRL Pump to handle the problem described with the photo above.

RESULT

Operation of these original Denver SRL pumps was so successful that, as a direct result, 42 additional Denver SRL Sand Pumps have been installed in this outstanding mill. These new pumps vary in size from the 2"x2" SRL (Open Runner) to the 8"x6" SRL-C (Closed Runner).

REASON

The Climax operators have found the efficient, trouble-free operation of Denver SRL Pumps entirely satisfactory. Life of wearing parts is long and shut-down time minimized. Horsepower requirements have been low and high efficiencies have resulted. Obviously, the Denver SRL is a big success at Climax.

HOW DENVER SRL PUMPS CAN REDUCE YOUR PUMPING COSTS

Send full data to us today regarding your particular pumping problem. Experienced DECO engineers will evaluate your problem and will return correct and workable recommendations immediately. This will obligate you in no way.

We carry replacement parts for all sizes of Denver SRL Sand Pumps in our Denver stocks. This enables us to give you prompt service whenever you may need it.

WRITE FOR FREE BULLETIN

DECO FLOTATION ENGINEERS — DENVER EQUIPMENT 24 HOUR SERVICE COMPANY

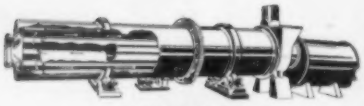
"The firm that makes its friends happier, healthier and wealthier"

DENVER, NEW YORK, CHICAGO, EL PASO, SALT LAKE CITY, VANCOUVER, TORONTO, MEXICO, D.F., LONDON, JOHANNESBURG

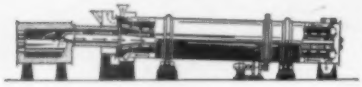
DENVER EQUIPMENT CO., 1400 Seventeenth St., Denver 17, Colorado

RUGGLES COLES DRYERS

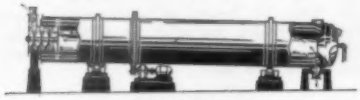
Available in a wide range of types and sizes—for any application



DOUBLE-SHELL
SEMI-DIRECT HEAT DRYERS

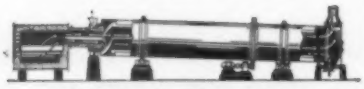


DOUBLE-SHELL
INDIRECT-HEAT DRYERS



STEAM-TUBE
INDIRECT-HEAT DRYERS

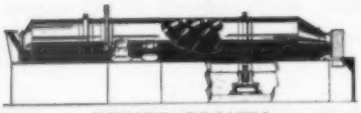
SINGLE-SHELL DIRECT-HEAT
COUNTERFLOW DRYERS



SINGLE-SHELL DIRECT-HEAT
PARALLEL-FLOW DRYERS

SINGLE-SHELL DIRECT-HEAT
HOT AIR DRYERS

ROTARY KILNS



ROTARY COOLERS

Write for Bulletin 16-D-8 giving us details of your drying problem.

HARDINGE
COMPANY, INCORPORATED

YORK, PENNSYLVANIA · 240 Arch St. · Main Office and Works
New York · Toronto · Chicago · Hibbing · Houston · Salt Lake City · San Francisco

pit and quarry

WALTER E. TRAUFFER
Editor

HARRY F. UTLEY
Pacific Coast Editor

ROY L. PECK
Field Editor

BUREN C. HEROD
Field Editor

M. E. ANSEL
Assistant Editor

JAMES G. KOSTKA
Director of Marketing and Research

JANET M. COHN
Editorial Assistant

JAMES E. MONTGOMERY
Chairman of the Board

WILLIAM A. WILSON
President

RAY L. SMITH, JR.
Senior Vice-President

W. T. KLUSSMAN
Secretary-Treasurer

ROBERT L. RUDD
Circulation Manager

GEORGE P. GRANT
General Sales Manager

HAROLD L. DAVIS
Production Manager

CHICAGO BUSINESS OFFICE
431 South Dearborn Street, Chicago 5, Illinois, HArrison 7-8558

FRANK J. CORNYN
Vice-President and Midwest Sales Manager

RAYMOND S. NEUWELT
Representative

NEW YORK BUSINESS OFFICE
370 Lexington Avenue, New York 17, N. Y., MUrray Hill 5-4438

JOHN R. DUBLE
Vice-President and Eastern Sales Manager

RICHARD J. MURPHY
Representative

CLEVELAND BUSINESS OFFICE
453 The Arcade, Cleveland 14, Ohio, CHerry 1-4431

CHARLES H. BUSSMANN
Vice-President and Central Sales Manager

J. G. JOHNSON
Central Advertising Manager

WEST COAST OFFICE

HARRY F. UTLEY, 820 N. Magnolia Avenue, Whittier, California

REPRESENTATIVES

FRED W. SMITH
1212 41st St., Belview Heights, Birmingham 8, Alabama

THE McDONALD-THOMPSON CO.
San Francisco, California

EDWARD T. THOMPSON
3727 W. 6th Street
Los Angeles 5, California

T. HARRY ABNEY
National Building
Seattle 4, Washington

ROY M. McDONALD
625 Market Street
San Francisco, California

ROBERT H. HEIDERSBACH
222 Colorado National Bank Bldg.
Denver 2, Colorado

FRANK N. VICKREY
3217 Montrose Blvd.
Houston 6, Texas

TED R. TRAUTMANN
2010 South Utica
Tulsa 4, Oklahoma

OLD VETERANS make fine salesmen!

IT doesn't always take a new up-to-date rig to create a repeat order. The North Star Concrete Company of Mankato, back in 1930 bought an old Northwest Model 3 built in 1927 (30 years ago). It is still operating (and we leave it to you to decide whether its performance was good)—for North Star has recently taken delivery on a new Northwest Model 25 Crane.

Northwests make money and there are a number of Northwest advantages responsible for it. These are advantages that you should know *all* about before you buy.

The "Feather-Touch" Clutch Control, the Cushion Clutch, Uniform Pressure Swing Clutches, Cast Steel Machinery Bases and Machinery Side Frames, the wide selection of Northwest Boom Hoist Equipment—these and other Northwest features along with that marvelous Northwest ability of always being ready to go, have made one out of every three Northwests sold a repeat order—and repeat orders are proof of more than satisfactory performance.

Ask a Northwest Man about these advantages.

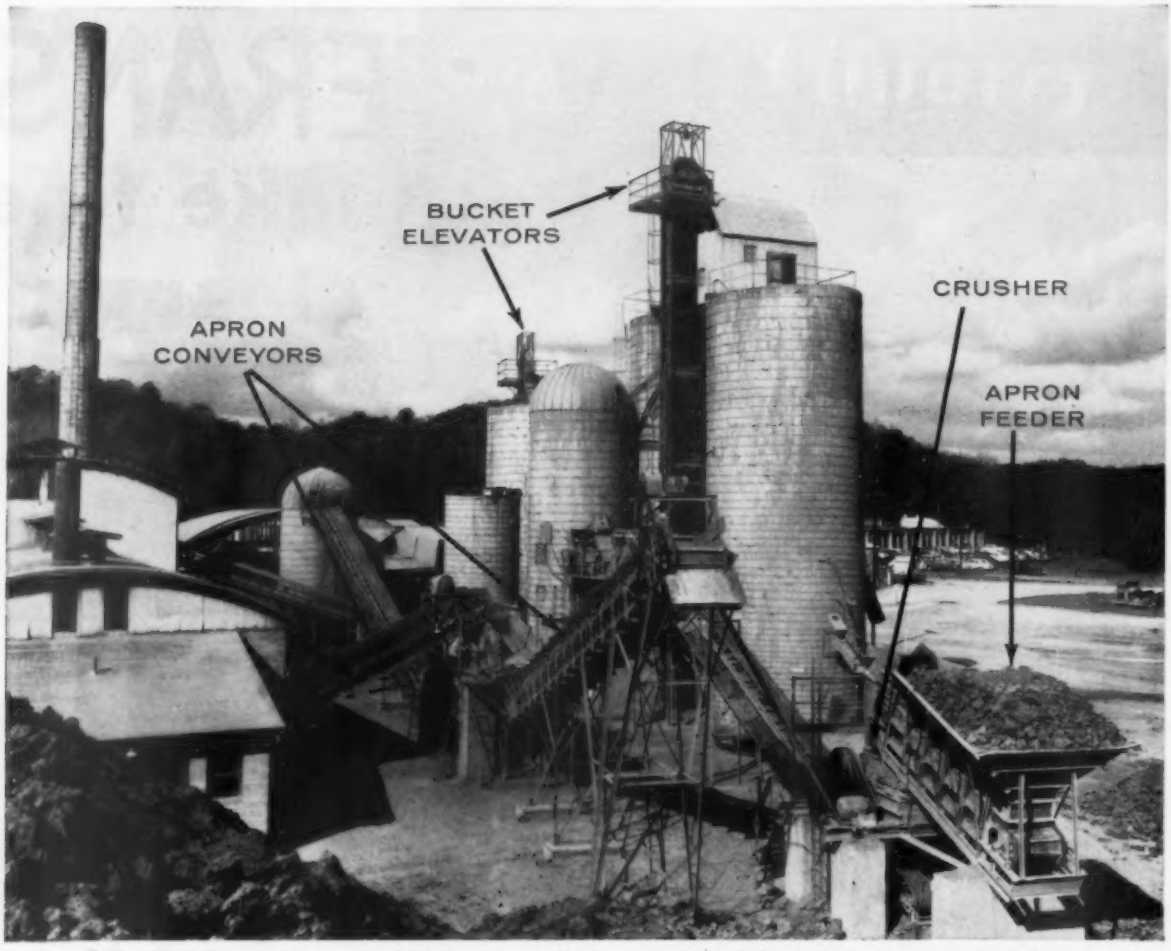
NORTHWEST ENGINEERING COMPANY
135 South LaSalle Street • Chicago 3, Illinois

C25-2-5

NORTHWEST

SHOVELS • CRANES • DRAGLINES • PULLSHOVELS

Convertible for any Mining Material Handling or Excavation Problem



Still other Jeffrey equipment, not visible here, is contributing to the high efficiency of this concrete products plant.

Flexible standard units are engineered by JEFFREY to meet your special requirements

Whether you're modernizing an existing system or planning an entirely new plant layout, let Jeffrey engineers assist you. They'll recommend the combination of conveying and processing equipment giving you highest production at lowest possible cost. Jeffrey's long line of standard units permits almost endless combinations to meet special requirements.

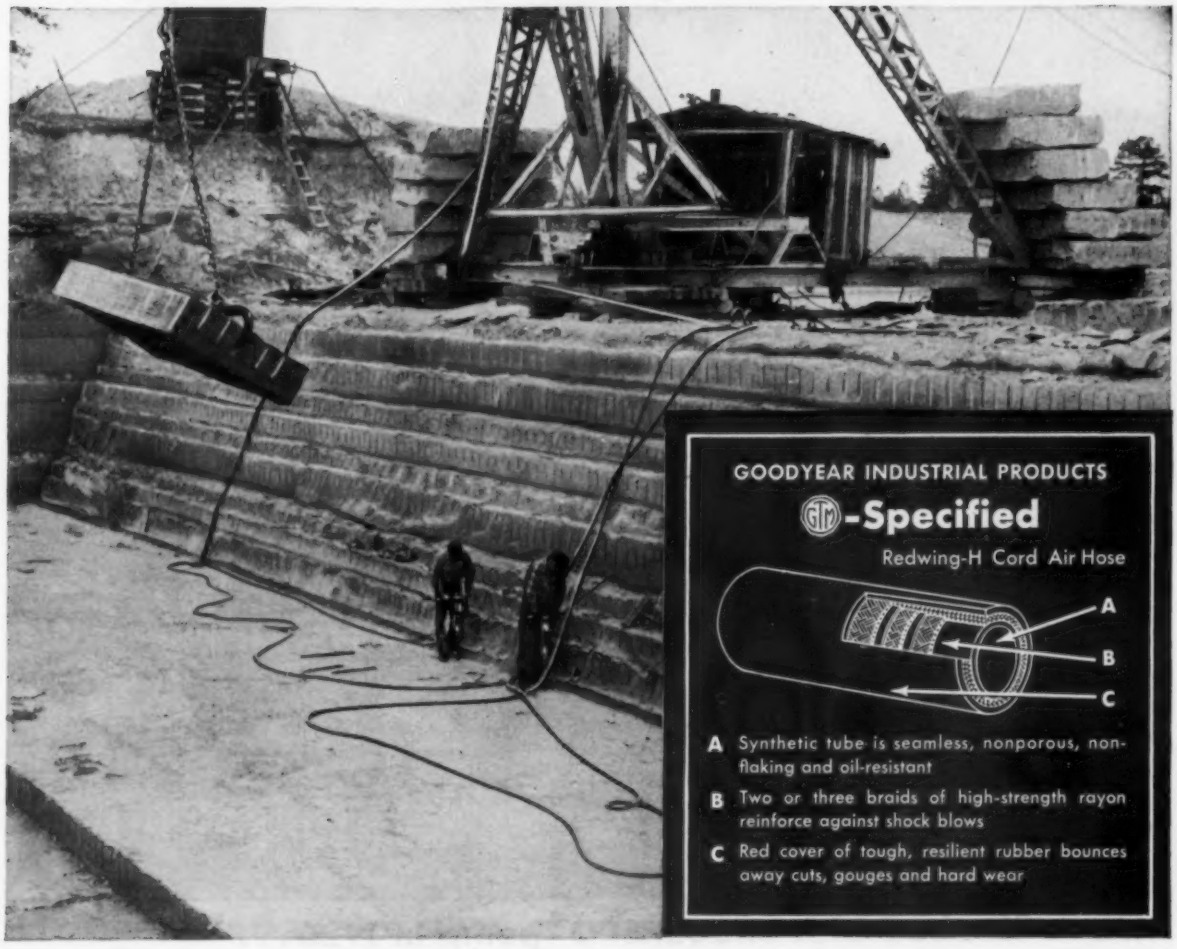
For this help, and for catalogs containing complete information on Jeffrey equipment, write to The Jeffrey Manufacturing Company, Columbus 16, Ohio. Replacement parts available from Jeffrey authorized distributor stocks.

In addition to the units named, the following Jeffrey equipment is widely used in the aggregate, stone, sand and gravel, clay, phosphate and sulphur rock industries:

Scraper Conveyors • Spiral Conveyors • Pulverizers • Power Scoops • Car Pullers • Vibrating Conveyors • Magnetic Separators • Stackers • Batchers • Chains • Feeders • Grizzlies • WAYTROLS • Jigs.

CONVEYING • PROCESSING • MINING EQUIPMENT • TRANSMISSION MACHINERY • CONTRACT MANUFACTURING

JEFFREY


GOODYEAR INDUSTRIAL PRODUCTS
G.T.M.-Specified
Redwing-H Cord Air Hose
A
B
C
A Synthetic tube is seamless, nonporous, non-flaking and oil-resistant
B Two or three braids of high-strength rayon reinforce against shock blows
C Red cover of tough, resilient rubber bounces away cuts, gouges and hard wear

G.T.M. cuts jackhammer hose costs over 50%

About four months was the average service for air hose on the jackhammers in this Midwestern quarry. Extreme abrasion, cutting and gouging plus direct blows from heavy rock were the reasons for early failure.

REDWING-H Cord Air Hose (see blueprint) was specified by the G.T.M.–Goodyear Technical Man. This rugged hose takes the beating in stride–lasts over a year–three times as long–cuts costs by more than half.

Similar savings may be yours, on hose or any industrial rubber goods, by consulting the G.T.M. You can contact him through your Goodyear Distributor. Or write Goodyear, Industrial Products Division, Akron 16, Ohio.

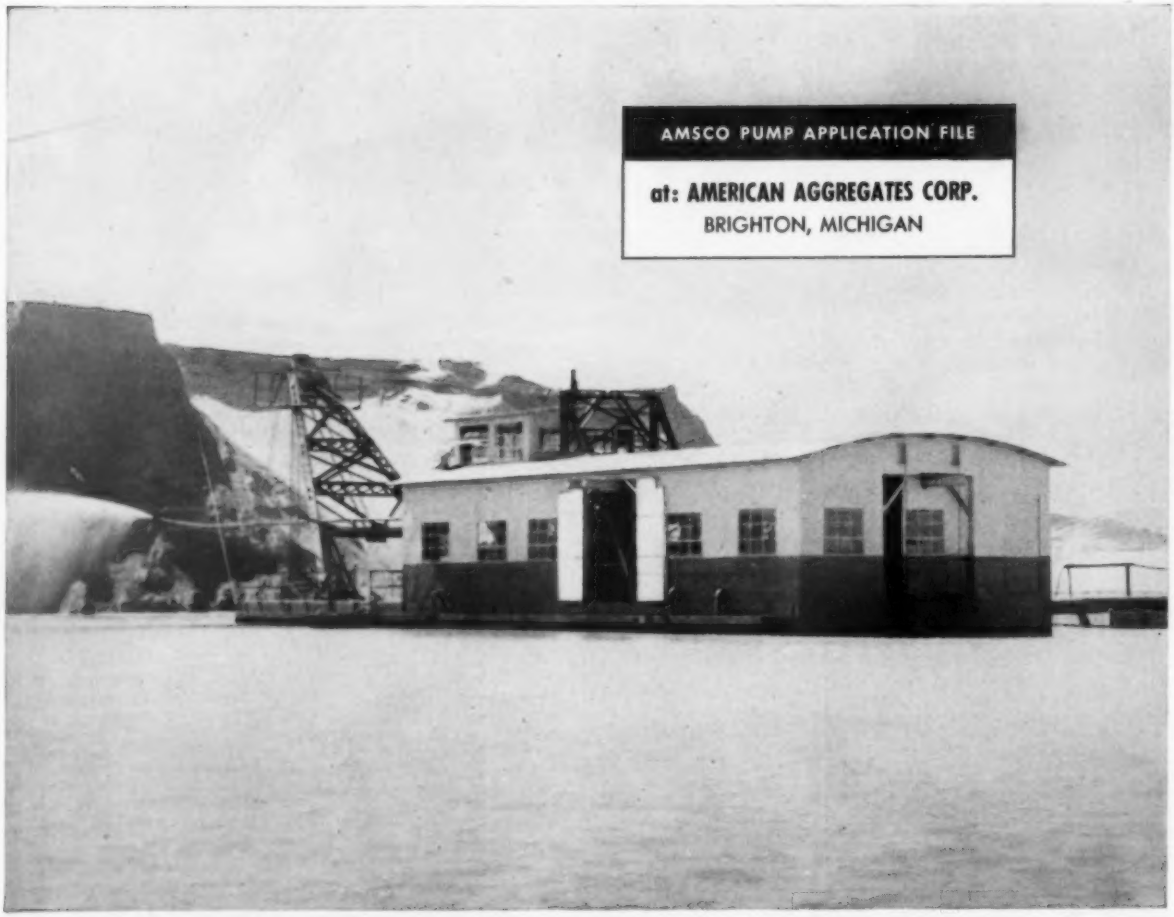
Redwing–T.M. The Goodyear Tire & Rubber Company, Akron, Ohio

REDWING-H CORD AIR HOSE by

GOODYEAR

THE GREATEST NAME IN RUBBER

IT'S SMART TO DO BUSINESS *with your Goodyear Distributor. He can give you fast, dependable service on Hose, V-Belts, Flat Belts and many other industrial rubber and nonrubber supplies. Look for him in the Yellow Pages under "Rubber Goods" or "Rubber Products."*



"Started with one AMSCO® pump in 1926 . . . now we have 17 in operation"

That's the statement of Sam Lafferty (right), Superintendent at Brighton. Twenty-nine years ago, the Brighton operation of American Aggregates began hydraulic dredging operations with one 15″ Amsco pump. Today, they have 17 pumps in operation, including 6, 10, 12, 16 and 20″ units.

Because the Brighton operation pumps a 60% sand, 40% gravel mixture —just the reverse of American Aggregates market demand—there is substantial pump-back of sand into the excavations. This heavy demand on the pumping equipment is partially responsible for American Aggregates' trend to larger pumping units. According to Mel Kerr, American Aggregates Vice President, "That new Amsco 20″ pump certainly does a job. We produce more on two shifts with this unit than we did with five shifts using a 16″ pump."

Last year, American Aggregates relied on Amsco pumping equipment to make them the world's largest producer of commercial processed sand and gravel.

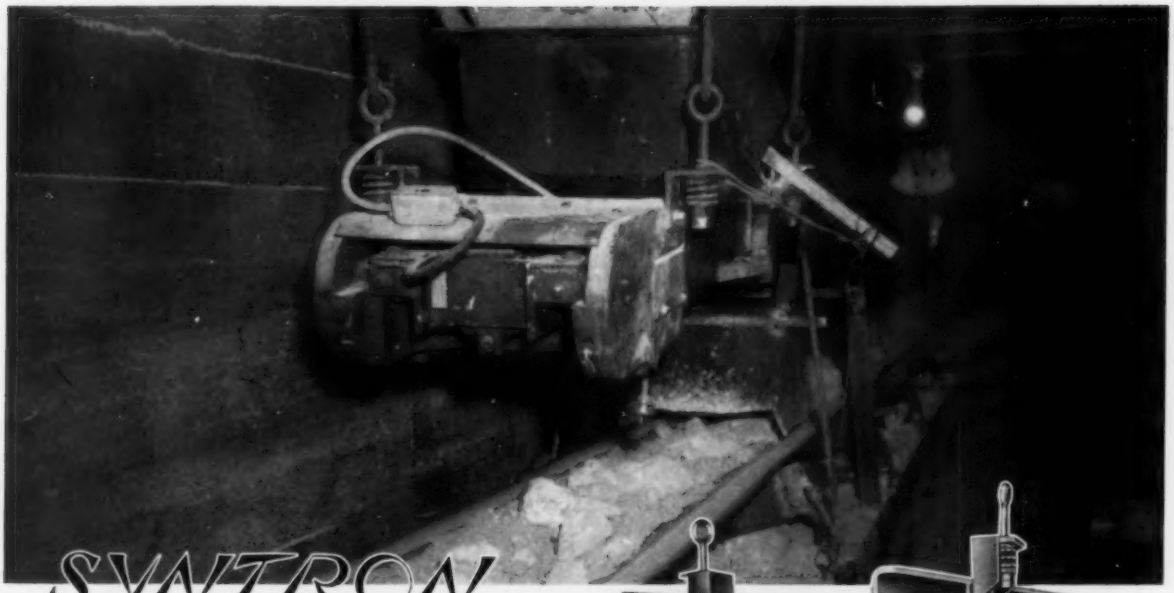
QUICK FACTS ABOUT AMSCO PUMPS. Whether your dredging operation is large or small, you can get an Amsco Dredge Pump to handle the job. Standard sizes range from 6″ to 20″ discharge openings. Larger sizes are also available. An Amsco pump engineer will be glad to discuss your requirements, or write for Bulletin 1052P, giving full information and specifications on the Amsco line.

AMERICAN Brake Shoe COMPANY

AMSCO

American Manganese Steel Division · Chicago Heights, Ill.

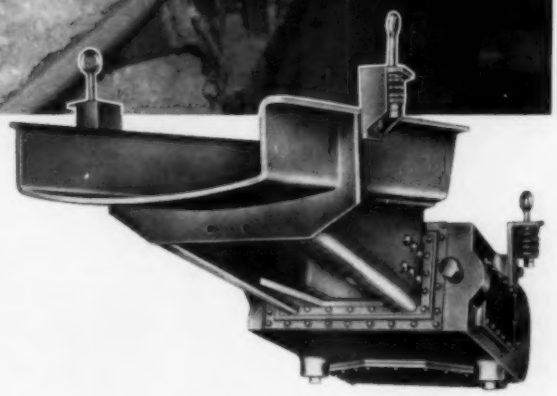
OTHER PLANTS IN: DENVER, LOS ANGELES, NEW CASTLE, DELAWARE, OAKLAND, ST. LOUIS; JOLIETTE, QUEBEC



SYNTRON

"Vibra-Flow"

VIBRATORY FEEDERS



—provide a low cost method of handling sand, gravel and cement

Syntron "Vibra-Flow" Vibratory Feeders with variable control rate of materials flow will match the capacity of your processing equipment—increase production. SYNTRON Vibratory Feeders are applicable to most any bulk materials handling problem. They provide a smooth, even flow of bulk materials, whether it be sand, gravel, limestone, sandstone or metallic ores, to screens, conveyor belts, pulverizers, crushers and other types of equipment.

The flow rate of SYNTRON Vibratory Feeders is instantly adjustable, from minimum to maximum to meet production schedules.

Increase production and lower operating costs with SYNTRON Vibratory Feeders in your operation. Send us details of your materials handling problem—our application engineers will be glad to make recommendations.

Other SYNTRON Equipment of proven dependable quality.

GASOLINE HAMMER ROCK DRILLS

100% Self-Contained. Blows holes clean to 13 foot depth, drills at 2 feet per minute with automatic rotation of drill steels.

FLOW CONTROL VALVES

Diaphragm type, bin gate valves for positive flow control and shut off of materials. Will not clog or jam.

a-c to d-c POWER CONVERSION UNITS

Low cost a-c to d-c power conversion in one package — Saves floor space — eliminate costly maintenance. Contain heavy-duty Selenium Rectifiers — automatic voltage regulator.

Write for complete Catalogue Data—FREE

SYNTRON COMPANY

385 Carson Avenue Homer City, Penna.

The Editor's Page

Quantity and Quality Will be Required

THAT a project of the magnitude of our 13-year highway program must inevitably be subjected to various difficulties and delays is inevitable, and everyone connected with it is aware of that fact. It is becoming obvious, however, that those in charge of the program are going to do everything possible to expedite it; no avoidable delays will be countenanced, but neither will any specifications be softened in the interest of speed. There has already been too much delay in something so vital to our country, beginning with the extra year or more required to get an acceptable plan approved by Congress. Further delay has developed because many of the states were unprepared to use the money made available to them. It is also inevitable that there will be production problems and trouble in meeting specifications; every effort must be made to keep these to the minimum.

BOTH before the highway bill was approved, and since that time, obstructionists have predicted that varied and assorted shortages would hamper the program for years to come. One of the first shortages was to be of cement. The cement industry's tremendous expansion program has dispelled any such fears. Contractors were supposed to be unprepared for such an increase in construction volume. Prompt action by the A.R.B.A., the A. G. C., and other industry associations alerted the contractors and erased any doubt as to their ability to meet the demands. Shortages of steel and other materials needed were also predicted, but only a prolonged strike apparently can create a serious problem.

Any fears that the aggregates industries would be unable to meet the demand were dispelled when, in answering our questionnaire for the January, 1956, review and preview issue of PIT AND QUARRY, producers reported considerable expansion of capacity during 1955 and even more planned for 1956. The replies for the January, 1957, review and preview verified these predictions and assured even greater expansion during 1957.

There is now no doubt that ample supplies of cement and aggregates will be available for this tremendous highway program. But there is apparently great concern in some quarters over the ability or intention of operators in the aggregates industries to produce such quantities of aggregates without sacrificing quality. Reassurance for those who fear that the accelerated rate of highway construction will result in a sacrifice of quality, not only with respect to aggregates but other materials as well, was given in an address by J. A. Volpe, Federal Highway Administrator pro tem, at the convention of the American Association of State Highway Officials. He declared, "It would be tragic, indeed, to jeopardize this magnificent program by any let-down of our supervisory or engineering standards. To the contrary, under the many-sided exigencies of this nationwide program, we shall need to lift our sights."

MORE recently, in addressing the convention of the National Crushed Stone Association, A. C. Clark, assistant commissioner of the Bureau of Public Roads, emphasized the intention of those in charge of this road program to maintain quality standards. Mr. Clark said that the Bureau is making detailed estimates of highway needs which should be helpful to the aggregates industries in developing plans on a long-range basis to meet the expanded needs. Further simplification of product sizes and streamlining of operating procedures, according to Mr. Clark would help to speed up the road program to the required pace. "It is believed," he said, "that this acceleration will take place with no sacrifice in the finished product."

In a recent address by C. D. Curtiss, Commissioner of Public Roads, Department of Commerce, before the annual convention of the National Crushed Limestone Institute sound advice was given and pertinent questions were raised. Mr. Curtiss asked: "How well are you prepared to meet this demand? Does your plant need modernization? Is it efficiently organized and operated? Would it pay you to increase your capacity in view of the assured increased and continuing demand? These are things to think about now. The demand for your product is not a vague, uncertain possibility of the future. It is now at hand.

"Are there one or more weak spots in your processing of stone from the quarry face to the storage bin? Possibly there are, and you don't know it. Is some other producer using equipment or methods that would enable you to increase output or reduce costs? We are interested in your knowing the answers to such questions."

THAT the quality problem is not being overlooked by producers is evident from discussions at the recent N. C. S. A. convention. At the operating session Joseph E. Gray, engineering director of N. C. S. A., pointed out that quality control is a timely subject due to the increasing pressure of production. There will be, he said, many inspectors of varied experience connected with the road program, and producers must watch not only the quality of their product but must also see that fair tests are made. Every operator must be familiar with methods of quality control and must keep records of tests so that production can be controlled.

Other speakers on the panel pointed out how to control quality of product by proper removal of overburden, soft stone, and deleterious matter; by keeping equipment in proper condition; by prevention of segregation; by elimination of flat and elongated particles, etc.

There seems to be no concern about any lowering of the quality of cement due to the increased demands of the highway program. In the production of aggregates, however, the application and enforcement of specifications is much more difficult. We are now assured that quality standards will not be lowered. It is up to every producer to take all necessary steps to meet the coming demands for quality, as well as for quantity.

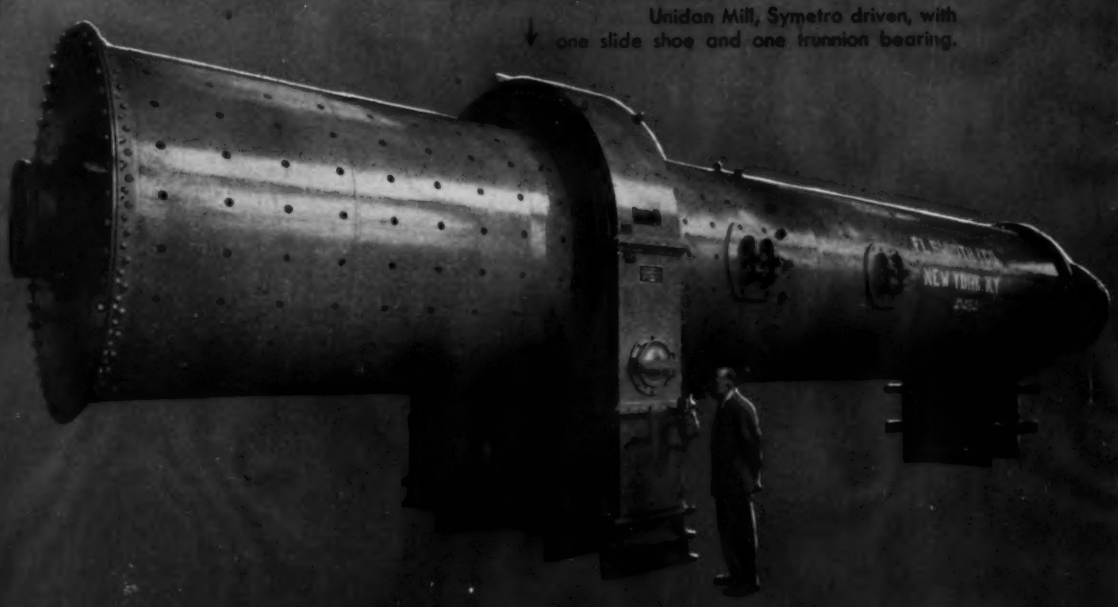
Walter E. Trauffer

SMIDTH

Grinding Mills

Ball Mills and multi-compartment Unidan Mills for wet and dry, open and closed circuit grinding and airswept Tirax Mills for simultaneous drying and grinding. Auxiliary equipment for mills. Special features include the Smidth slide shoe bearing and the Symetro Drive.

Unidan Mill, Symetro driven, with one slide shoe and one trunnion bearing.



F. L. Smidth & Co.
Engineers and Machinery Manufacturers
11 West 42nd Street
New York 36, N. Y.

F. L. Smidth & Co., A/S
77 Vigerslev Alle
Copenhagen, Denmark

F. L. Smidth & Co., Ltd.,
105, Piccadilly,
London, W. 1, England

F. L. Smidth & Cie France
80 Rue Taitbout
Paris (9e) France

F. L. Smidth & Co. of Canada, Ltd.
11 West 42nd Street
New York 36, N. Y.

F. L. Smidth & Co. (Bombay) Private Ltd.
42 Queen's Road
Bombay, India

Washington News Letter

FROM the standpoint of the immediate and long-run prosperity of the pit-and-quarry industries, nothing done by the last Congress compares with the passage of the Highway Act of 1956. Under that act, the Federal Government has committed itself to undertake a long-term program of increased assistance to the states which will provide (1) large and expanding allocations for a mainly federal-financed interstate system linking the principal cities, and (2) a stepped-up allocation for the regular federal aid program on a 50-50 matching basis.

At the time of its passage, it was recognized that this tremendous program would have some substantial economic effects. However, in the political confusion that followed, relatively little was done in the way of sober analysis until the release of a recent report by the U. S. Department of Commerce.

By S. HERBERT UNTERBERGER

A Little History

To achieve the necessary perspective from which this program can be accurately viewed, a short historical summary may be helpful. There is very little that is new about the basic ideas which have been included in the Highway Act of 1956. For example, the program of federal aid whereby the Federal Government matches state funds for highway building purposes dates back many years. Also the national system of defense and interstate highways, the accomplishment of which is a principal objective of this new law, actually began more than ten years ago. The general locations of the original routes were defined by the Congress in 1947. The magnitude of the program, however, is different.

Through 1954 the Federal Government had specifically authorized only $400,000,000 for the national system. The new act authorizes a total of nearly $25,000,000,000 of federal funds over the next 13 years. Also the federal aid program, which never provided as much as $1,000,000,000 of federal funds in a year will provide $2,500,000,000 per year for the next three fiscal years. Authorizations after fiscal year 1959 have not yet been made, but it is firmly anticipated that they will not be less than this figure.

Road building virtually shut down during World War II except for the few new roads which were an absolute military necessity. But when the war was over, road building did not recover nearly as rapidly as other industries, nor at the rate of the other branches of the construction industry.

It was 1948 before the number of dollars spent on road construction reached prewar rates; but it must be remembered that costs and prices had risen substantially in the intervening period. It was not until late in 1952 or early in 1953 that the physical volume of road construction began to equal the prewar rates. By that time the situation had almost reached a critical stage because the amount of vehicular travel had by then increased by more than 50 percent above the prewar rate.

In the last four years the volume of highway construction has shot up rapidly. By 1956 it was two-thirds above the 1952 level. The Department of Commerce attributes this sharp rise in the real volume of highway construction to "(1) a substantial rise in federal aid matched by state funds, (2) an upsurge in toll road construction financed largely by special bond issues, and (3) a stabilization through mid-1955 in road construction costs which enabled rising receipts available from road user taxes to purchase increased road construction."

The Net Effect

Because of the Highway Act of 1956 which established a long-run program which will take us through 1972, the federal aid funds for highway construction are estimated through 1972 to amount to $38,500,000,000. Together with required state matching funds, more than $50,000,000,000 will become available for co-operative federal-state interstate and regular aid projects over the duration of this program.

The above figures are so large and cover so long a period of time that it may be difficult to comprehend their relative effect. Converting the information into annual expenditure rates should provide a more realistic basis of comparison. The Department of Commerce puts it this way, "Spending, including state matching funds, on federal aid highway projects has risen from less than $1,000,000,000 in 1952 to nearly $1,700,000,000 in 1956. It is expected to rise to $3,000,000,000 within a few years, reaching $3,500,000,000 by 1965, and to continue rising to around $4,000,000,000 in the final stages of the program . . ."

The Economic Impact of The Highway Program

In analyzing the impact of this truly phenomenal program, three separate aspects must be considered: (1) the effect on metropolitan areas, (2) the effect upon the road building industry and those closely associated with it, and (3) general economic effects.

With respect to the effect of this super-highway program on central city development, the Department of Commerce, at least, does not join the "viewers with alarm" who see the program dealing a death blow to the central city areas, particularly to real estate values there. It is pointed out: "The new highways contain at once the potential for increased concentration of economic activity or dispersal. To the extent that commuting distance is a function of time required per trip, new areas farther out from the city's center will be brought within range of effective commuting. Cross commuting will be eased by the use of inner and outer belt loops in the larger metropolitan areas. Already required to handle existing traffic volumes, the new urban super-highways will not solve the problem of congestion; by providing a measure of relief in the present situation, they could operate to increase the concentration of activity in the urban business district."

With respect to the effect on the road building and associated industries, there is no question that it will be expansionary. The Department of Commerce has some pertinent observations on who is likely to be benefited most. Department spokesmen point out that "for the Inter-

(Continued on page 42.)

There's MORE

from Allis-Chalmers...

Dependable POWER

for Ore and Rock Processing

Apply the many cost-saving features of Allis-Chalmers deep rib motor in a variety of processes... both indoors and out.

Here's why these motors offer more dependability in quarrying and mining operations:

MORE Cooling Surface — Rib-type design provides reserve cooling capacity—an important factor in dirty locations.

MORE Iron — Cast-iron frame and external parts assure greater rigidity and resistance to corrosion.

MORE Copper — Greater use of copper increases electrical life.

MORE Lubrication Provisions — Large grease reservoirs surround bearings. Provision made for in-service lubrication — important where moisture or corrosive vapors contaminate grease.

Rib-Type MOTORS 1 to 100 hp

Allis-Chalmers offers rib construction in all enclosed motors from 1 to 100 hp (through frame 505). To find out more about A-C motors, contact your nearby A-C distributor or district office, or write Allis-Chalmers, General Products Division, Milwaukee 1, Wisconsin.

ALLIS-CHALMERS

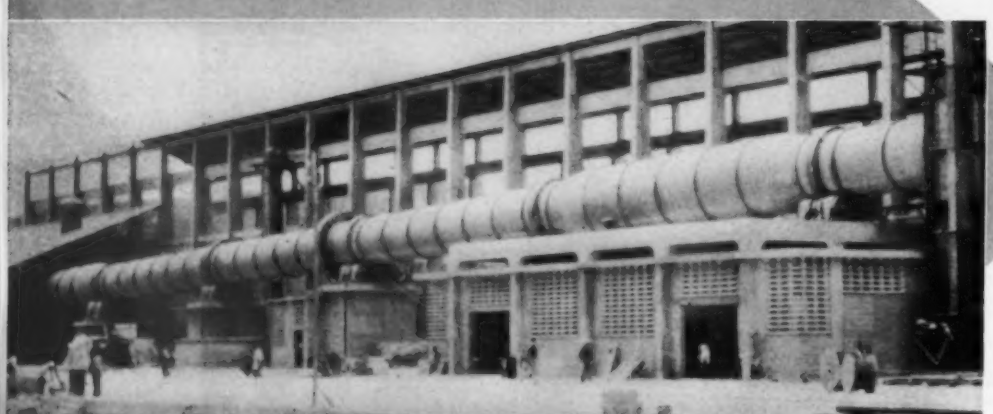
A-C ALLIS-CHALMERS

A-5271

KENNEDY

For

Cement—Wet or Dry Process
Lime
Calcined Coke
Dead Burned Dolomite
Nodulizing and Agglomerating



Kennedy 9' x 11' x 350' Rotary Kiln being installed in Wet Process Cement Plant.

In use throughout the world by many of the largest producers of the materials which are vital in today's industrial program, Kennedy Kilns are designed to operate economically, efficiently under all conditions with lowest maintenance costs. Built in any length or diameter.

KENNEDY-VAN SAUN

Rotary Kilns

FOR FUEL ECONOMY, KENNEDY KILNS CAN BE SUPPLIED WITH

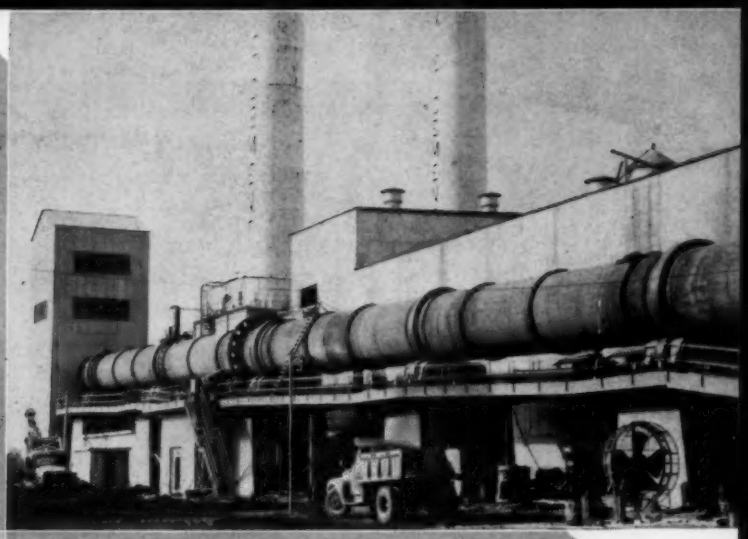
Kennedy Multivane Internal Recuperator

or

Kennedy-Grudex External Preheater

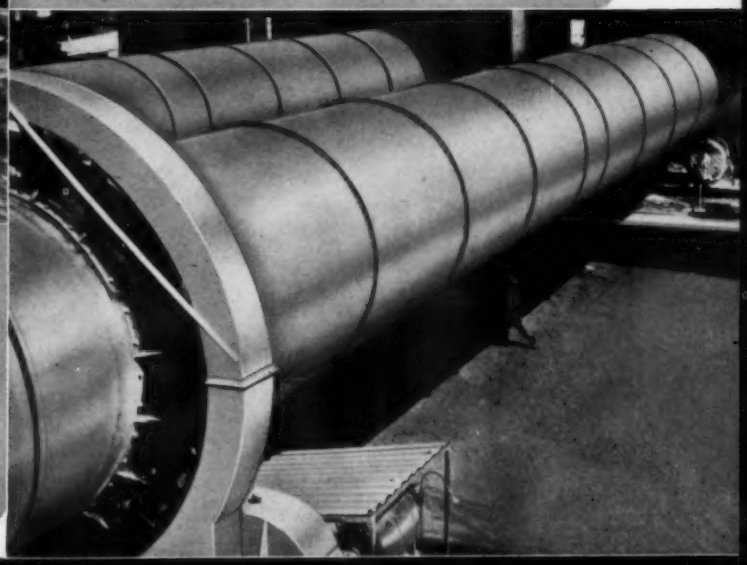
or

Kennedy External Stone Preheater



Kennedy, 11'x375' Rotary Kiln in Wet Process Plant.

Two, 10'x175' Kennedy Rotary Kilns, in Dry Process Cement Plant.



Two, 11'x375' Kennedy Rotary Kilns in process of erection at 5,000 Barrels per day. Wet process Cement Plant.

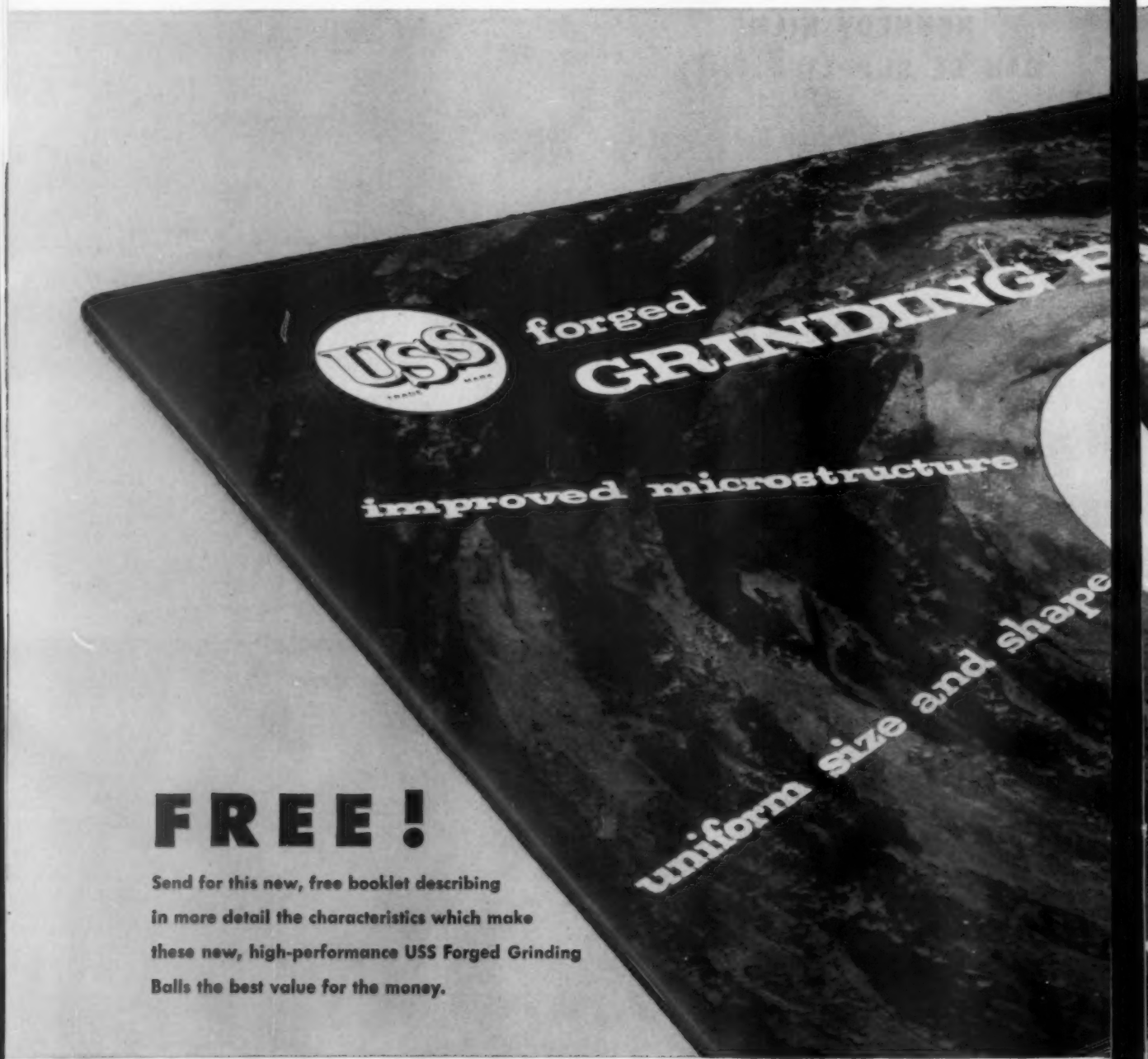
Send for literature . . . today!

MANUFACTURING & ENGINEERING CORPORATION

TWO PARK AVENUE, NEW YORK 16, N.Y. • FACTORY, DANVILLE, PA.

United States Steel

new, high-performance Forged Grinding Balls



FREE!

Send for this new, free booklet describing in more detail the characteristics which make these new, high-performance USS Forged Grinding Balls the best value for the money.

USS Forged Grinding Balls

UNITED STATES STEEL CORPORATION, PITTSBURGH • COLUMBIA-GENEVA STEEL DIVISION, SAN FRANCISCO
TENNESSEE COAL & IRON DIVISION, FAIRFIELD, ALA. • UNITED STATES STEEL EXPORT COMPANY, NEW YORK

UNITED STATES

announces

made of either Carbon-Manganese or Alloy Steel

New equipment and new standards of quality control make the new USS Forged Steel Grinding Balls the very best you can buy.

The chemical composition and heat treatment of these new balls were designed to obtain a high level of hardness combined with sufficient toughness to minimize breakage. This combination assures you of excellent ball performance.

USS Forged Carbon-Manganese Grinding Balls are designed to withstand the rugged treatment found in most mills. USS Alloy Grinding Balls were developed for use in unusually severe operating conditions. Both types are available in the same sizes: ¾", ⅞", 1", 1¼", 1½", 2", 2½", 3", 3½", 4", 5".

USS

United States Steel Corporation
525 William Penn Place, Room 5582
Pittsburgh 30, Pennsylvania

Please send me a copy of "USS Forged Grinding Balls."

Name _____

Company _____

Address _____

City _____ **State** _____

S T E E L

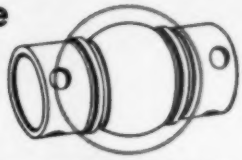
for heavy-duty
shock load service...

which bearing is best?

	Ball	Tapered Roller	Shafer
Low Friction Loss	✓		✓
Self-Alignment	✓		✓
High Radial Load Capacity		✓	✓
High Thrust Load Capacity		✓	✓
High Shock Load Reserve		✓	✓
Long Life		✓	✓
Fast, Positive Adjustment			✓
Lowest First Cost	✓		
Lowest Over-All Cost			✓

SHAFER Self-Aligning Roller Bearings give you more

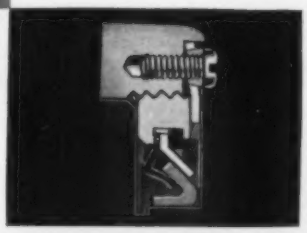
Shafer design combines both the low rolling friction of a ball and the high load carrying capacity of a roller. Under shock loads, continuous heavy-duty loads—even under conditions of misalignment—Shafer Bearings maintain full load capacity. You can get off-the-shelf delivery of standard pillow blocks, flange units, flange cartridge units and take-up and frame units. Call your nearby CHAIN Belt District Office, Representative or Distributor.



Inner race is segment of a ball.

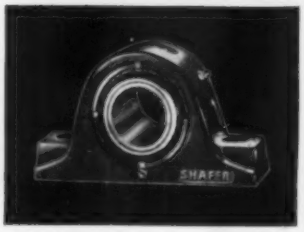
Roller presents matched curve surface.

and...



"Z" seal keeps dirt out ...grease in

Shafer exclusive—"Z" seal is an all-metal, non-rotating, true self-aligning seal that provides positive sealing under severe conditions.



Micro-lock wear adjustment

Shafer® exclusive Micro-Lock provides 12-point adjustment compensating for wear or unusual operating conditions.

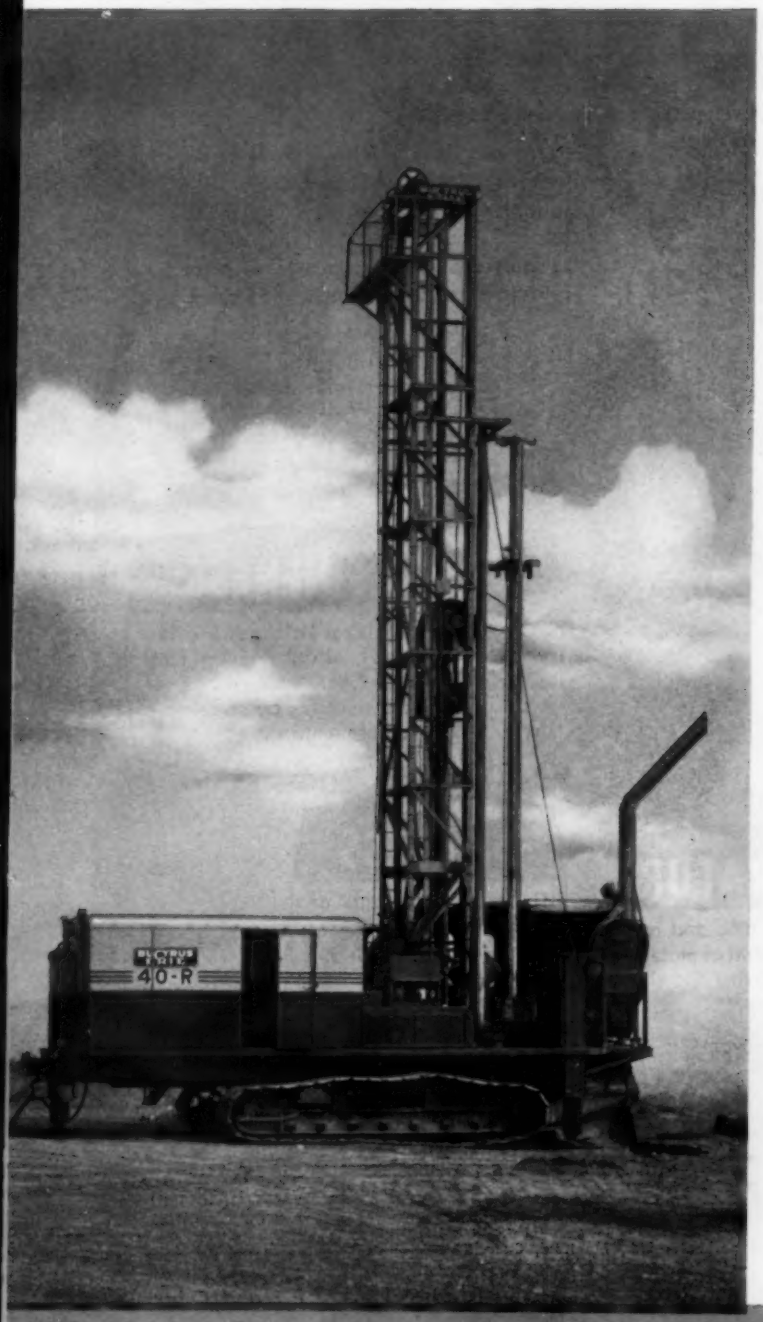
Get full information on high bearing capacity. Write for catalog 55A.

CHAIN BELT COMPANY

4604 W. Greenfield Ave., Milwaukee 1, Wis.

Poughkeepsie, New York...

another example of how Bucyrus-Erie rotaries cut blast hole drilling costs



Working some 70 miles up the Hudson River from New York City, a Bucyrus-Erie 40-R rotary blast hole drill has brought new operating efficiency to a quarry near Poughkeepsie.

This rig, drilling 9-in. holes through very hard dolomite, averaged 12 feet per scheduled hour and 17.2 feet per actual drilling hour during its first two months of operation. Average footage per bit for the five bits used during this period was 689 feet.

Before the 40-R was installed at this quarry, churn drills were used which averaged 4½ feet per hour and 20 feet per bit sharpening. These drills likewise were using 9-in. bits.

Wherever Bucyrus-Erie rotaries are put on the job, substantial increases in footage result. Here are a few reasons why:

- **Hydraulically-powered down pressure on the bit** provides controlled load on drilling tools for maximum penetration. *Ward Leonard electric control* on rotation of the drill pipe permits drilling at the most efficient speed for a given formation.
- **A remote-controlled, power-driven drill pipe rack** eliminates any manual effort on the operator's part when adding or removing drill pipe. Hole can be drilled continuously for the full length of a drill pipe . . . 27 ft., 9 in. for the 40-R; 32 ft., 9 in. for the 50-R.
- **Compressed air is used to remove cuttings** and to cool the bit. Fine cuttings are picked up and handled by a Roto-Clone precipitator; heavies pile up adjacent to the drill hole for use as stemming material.

Let us tell you more about the speed and economy of Bucyrus-Erie rotary blast hole drills — the 40-R for drilling 6¾- to 9-in. holes, and the 50-R for drilling 9⅞- to 12¼-in. holes. Write today for detailed, illustrated literature. 38B56C

BUCYRUS ERIE

SOUTH MILWAUKEE, WISCONSIN

Better Product CONTROL with RAYMOND FLASH DRYING

You can improve the marketability of your product and profit by record-low operating costs when you install Raymond *flash-drying-equipped* pulverizing mills.

These modern machines provide a clean, dust-free system for the automatic handling of the material and for complete control of the finished product.

All operations are combined in one single unit of equipment. This simple and economical method is an exclusive development of Raymond engineers.

Raymond Flash Drying is available with the Roller Mill, as shown, also with the Imp Mill or the Cage Mill. Every Raymond installation is *tailored* to individual requirements as to plant capacity, nature and fineness of product, moisture removal.

For further details and types of materials handled, write for Catalog No. 82.

FINENESS

Whizzer air separation gives instant fineness control over wide range of classification by one simple adjustment.

UNIFORMITY

Close selection of fines and continuous return of the oversize to grinding chamber for further reduction, maintain consistent uniformity.

TEMPERATURE

Short retention time and relatively small amount of material in system, insure fast and close temperature control.

DRYNESS

Desired percentage of moisture is removed by Flash Drying simultaneously with the grinding operation.

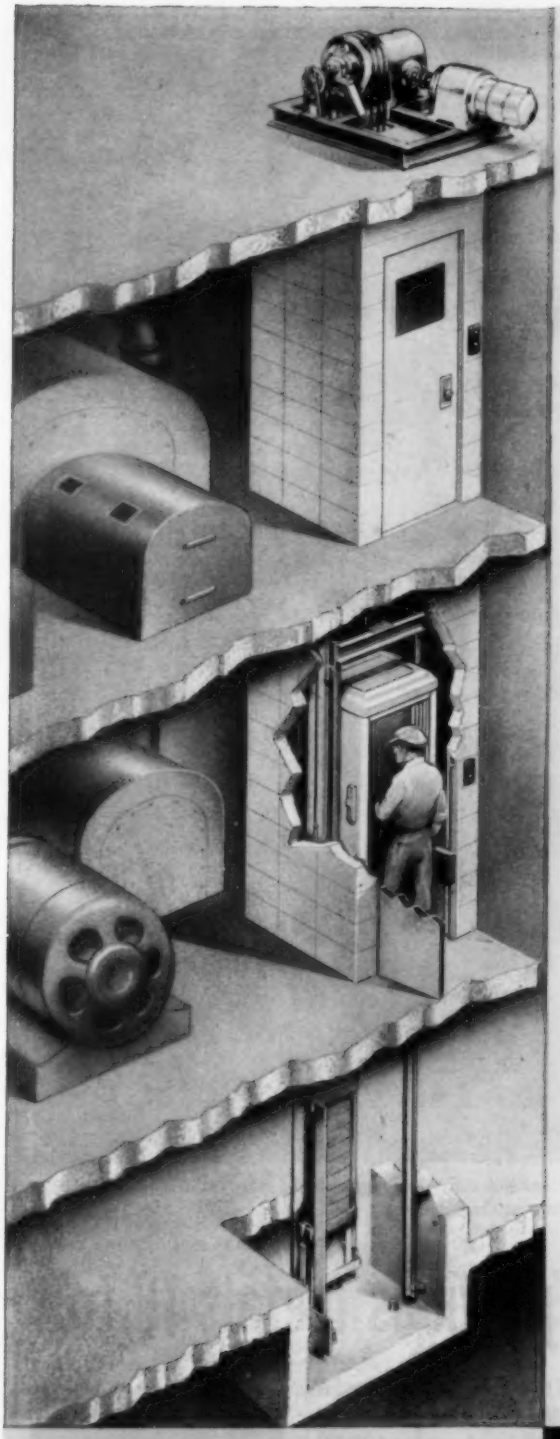
COMBUSTION ENGINEERING, INC.

Raymond Division

1321 NORTH BRANCH ST.
CHICAGO 22, ILLINOIS

SALES OFFICES IN PRINCIPAL CITIES

Combustion Engineering-Superheater Ltd., Montreal, Canada



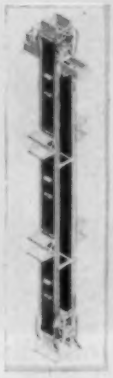
speed production eliminate fatigue increase safety

EHRSAM ELECTRIC ELEVATORS AND BELT MANLIFTS

This rapid, safe transportation between levels for employees pays big dividends in increased efficiency of plant operations. It keeps working spirits high and conserves man-energy. Such inter-floor transportation is economical for any plant with two or more stories.

Ehrsam Electric Elevators and Belt Manlifts are factory-assembled and pretested. Standard speed of Electric Elevators is 90 ft./min.; for special applications speeds of from 50 - 120 ft./min., are available. Standard speed of Belt Manlifts is 75 ft./min.; for special applications speeds of from 50 - 80 ft./min., are available.

ELECTRIC ELEVATORS
Push button car-type electric elevators for one to four passengers.



BELT MANLIFTS
Step-on-type vertical endless belt manlifts for simultaneous traffic in both directions.

Ehrsam Elevators and Belt Manlifts conform to the requirements of the American Standard Safety codes, all local and state codes.

Start your business on the way "UP" with an Ehrsam Elevator or Manlift!

Dept. Q

WRITE or WIRE TODAY for illustrated brochure showing typical installations and specifications.

EHRSAM

THE J. B. EHRSAM & SONS MFG. CO.

ENTERPRISE, KANSAS

Over 80 Years of Dependable Service

At Bradford Hills Quarry, Downingtown, Pa., equipment of Lukens "T-1" steel of 321 min. Brinell hardness now handles 1000 tons of limestone daily — so far has lasted more than 18 times as long as metals previously used for the same purpose.

Lukens "T-1" Steel outlasts previous metals 18 to 1

TRADEMARK

Maintenance and replacement costs dropped sharply in chute liners, impact crusher caps, and similar parts when Bradford Hills Quarry switched to Lukens "T-1" steel. These critical parts once wore out in a month. Now they show little or no wear *after 18 months.*

Whether you handle stone, coal, or metal ores, Lukens "T-1" steel in areas hardest hit by punishing impact and abrasion will save you money too. Wear plates, dredge pump liners, storage bins, and fly-ash collectors are just a few typical applications.

Lukens "T-1" steel retains its remarkable combination of hardness and toughness at temperatures well below zero. *Look into it now. Write for informative illustrated booklet, "Lukens 'T-1' Steel." Address Manager, Marketing Service, Room 903, Lukens Steel Company, Coatesville, Pennsylvania.*

LUKENS ®

Helping industry choose steels that fit the job

News of the Industry

New York Trap Rock Corp. Promotes Paul M. Hedley To Public Relations Post

Paul M. Hedley has been named to the newly-created position of assistant vice-president for community and employee relations for the New York Trap Rock Corporation, New

Paul M. Hedley

York, N. Y. Mr. Hedley was formerly director of industrial relations for the North American Cement Company.

Mr. Hedley has had more than 20 years of experience in the quarrying and mining industry. In 1934 he joined a large Canadian mining company as a laborer, and was manager of one of the firm's plants when he left to enter military service in 1942. From 1946 to 1948 he managed a small gypsum plant.

In 1949 Mr. Hedley joined North American as manager of one of its three plants, and in 1952 was promoted to director of industrial relations.

In his new position with New York Trap Rock, Mr. Hedley will supervise community and employee relations programs carried on in the firm's operating areas. These include three plants in Rockland County, one near Wappingers Falls, and a shipyard at Newburgh, N. Y. He will make his headquarters at the company's Newburgh office.

J. S. Vrabek of Sturtevant Dies in New York at 71

John S. Vrabek, 71, vice-president and sales manager of the Sturtevant Mill Company, Boston, Mass., died recently in New York City.

Mr. Vrabek had been with the firm since 1912, and had has headquarters in the firm's New York offices. He was widely known in cement industry circles, and was considered an expert on air separation.

On April 12 and 13 the Texas Aggregates Association and the Texas Ready Mixed Concrete Association will hold their third annual joint convention at Galveston. Sessions will be held in the Hotel Galvez.

Dolese & Shepard Company Buys 84-Acre Property of Natl. Stone at Joliet, Ill.

The 84-acre property of the National Stone Company near Joliet, Ill., has been acquired by the Dolese and Shepard Company, producers of agricultural limestone, crushed limestone, and ready-mixed concrete, located at La Grange, Ill. The price was reported at $750,000.

According to Albert R. Hock, president of Dolese and Shepard, present production at the quarry, 350 tons per hour, will be stepped up to 850 tons per hour by this autumn. Mr. Hock stated that the acquisition includes other assets and the name of National Stone. The National quarry has its own dock on the Illinois Waterway. Products of the plant are agricultural limestone and crushed limestone.

No immediate changes in personnel or operation of the new quarry are contemplated.

Coming Events

February 11-14, 1957 — Los Angeles. 41st annual convention, National Sand and Gravel Association and 27th annual meeting, National Ready Mixed Concrete Association. Statler Hotel.

February 24-28, 1957 — New Orleans. Annual Meeting, American Institute of Mining, Metallurgical and Petroleum Engineers. Roosevelt Hotel.

February 25-28, 1957—St. Louis. 37th annual convention, National Concrete Masonry Association, and 10th biennial show, Concrete Industries Exposition. Kiel Auditorium.

February 25-28, 1957 — Dallas. 53rd annual convention, American Concrete Institute. Statler-Hilton Hotel.

March 5-9, 1957 — Washington D. C. 49th annual convention, American Concrete Pipe Association. Shoreham Hotel.

May 15-17, 1957—Hot Springs, Va. 22nd annual meeting, National Industrial Sand Association. The Homestead.

June 6-8, 1957 — Colorado Springs. Annual convention, National Lime Association. Broadmoor Hotel.

June 16-21, 1957—Atlantic City. 60th annual meeting, American Society for Testing Materials. Chalfonte-Haddon Hall.

July 11-13, 1957—Hot Springs, Va. Directors' meeting, National Crushed Stone Association. The Homestead.

August 25-31, 1957—Murray Bay, Canada. Semi-annual directors' meeting, National Sand and Gravel Association and National Ready Mixed Concrete Association. Manoir Richelieu.

Dodge Corp. Reports Drop In '56 Private Building — Public Construction Steady

Although 1956 set a new all-time record for construction contracts, some softening became apparent toward the end of the year, particularly in the private building categories, according to an annual review of F. W. Dodge Corporation figures.

In reviewing contract awards for future construction in the 37 eastern states, George Cline Smith, Dodge vice-president and economist, singled out as the "most surprising" recent trend a sharp dip in contracts for new factory buildings in the last few months. December awards in this category, he reported, reached the "very low" levels of December, 1954.

According to Dr. Smith, the significant 1956 developments revealed by a study of Dodge figures not previously made public were these:

1. New housing activity underwent a much publicized decline, with a fairly sharp drop in the number of units built, a more moderate decline in the floor area provided, and a smaller drop in dollar volume.

2. There was more emphasis on public construction in 1956 than in 1955, and public construction held up during the year better than private.

3. Industrial building began 1956 with a boom, which faded rapidly as the year progressed. Contracts for factory buildings in the first quarter of 1956 ran 60 percent ahead of the same quarter of 1955; but the fourth quarter ran 30 percent behind the corresponding quarter of 1955.

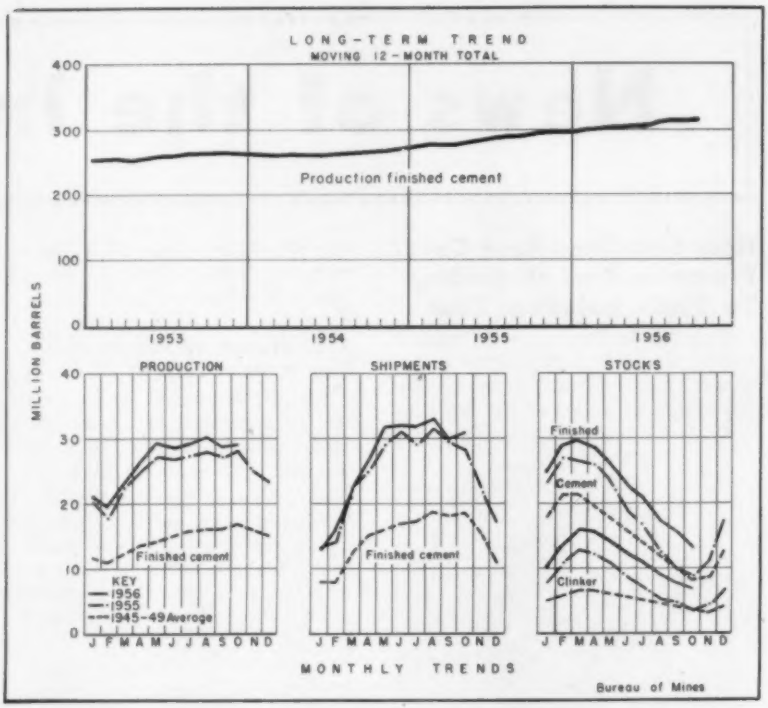
4. Community buildings (schools, churches, hospitals, and public buildings) continued their steady postwar growth, reaching a combined total of more than $4,000,000,000 for the first time.

Ideal's Redwood Expansion Starts with Big Kiln Order

The first step in the plant construction program of the Ideal Cement Company at Redwood City was taken on January 3 when an order was placed with F. L. Smidth and Company for two new kilns with related mills and other machinery costing $2,300,000. Engineering is now underway on a 3,000,000-bbl. cement plant to be constructed alongside the company's present plant at the Redwood City location.

Since the Pacific Portland Cement Company merged with Ideal in 1952, the Redwood City plant has been brought up to date, and more than $2,000,000 has been spent at that location to increase the productive capacity by about 10 percent. It was planned from the start that this additional production would be added later; now it is planned to start construction late this summer.

As a part of the program the company will build a permanent terminal at Sacramento, for which plans are now under way. Bids are expected to be taken on the terminal by March 1, and completion is scheduled for October 1, 1957. In the meantime, a temporary terminal will be put into operation to take care of the company's distribution in that area, starting April 1.



SUMMARY—Production of finished portland cement in October, 1956, as reported to the U. S. Bureau of Mines, totaled 29,051,000 barrels, an increase of 4 percent over the October, 1955, figure. Mill shipments in October, 1956, totaled 31,354,000 barrels, an increase of 9 percent over the October, 1955, figure. Stocks of 12,998,000 barrels of finished portland cement on hand October 31, 1956, were 48 percent more than were on hand on October 31, 1955. Clinker production during October, 1956, totaled 27,940,000 barrels, an increase of 4 percent over the October, 1955, figure.

PRODUCTION—One hundred and sixty (160) plants in 37 states and Puerto Rico reported a production of 29,051,000 barrels of finished portland cement during October, 1956, compared to 27,924,000 barrels in October, 1955.

Clinker production during the month of October, 1956, was 27,940,000 barrels, compared to 26,818,000 barrels in October, 1955.

Highly-early-strength portland cement produced during October, 1956, totaled 791,000 barrels, a decrease of 9 percent from the 868,000 barrels produced in October, 1955.

Prepared masonry cement produced in October, 1956, totaled 1,204,000 barrels, a decrease of 6 percent from the 1,282,000 barrels produced in October, 1955.

SHIPMENTS—Mill shipments of finished portland cement for October, 1956, totaled 31,354,000 barrels, compared to 28,641,000 barrels in October, 1955.

In October, 1956, sixteen (16) districts showed an increase in shipments over October, 1955, and seven (7) showed a decrease. The greatest increases were in the Ohio, western Pennsylvania-West Virginia, and the southern California districts. The greatest decreases were in the Virginia-South Carolina and the Wyoming-Montana-Idaho districts.

Mill shipments of high-early-strength portland cement in October, 1956, totaled 1,062,000 barrels, an increase of 9 percent over the 971,000 barrels shipped in October, 1955. Over half of these shipments were from mills in three (3) districts, eastern Pennsylvania-Maryland, Michigan, and Alabama. No shipments were made from mills in Puerto Rico.

Mill shipments of prepared masonry cement in October, 1956, totaled 1,327,000 barrels, a decrease of 5 percent, compared to the 1,392,000 barrels shipped in October, 1955. Nearly two-thirds of these shipments were from mills in the northern states east of the Mississippi River. Prepared masonry cements are shown in 376-lb. barrels alhtough they are sold in barrels of varying weights.

STOCKS—Mill stocks of 12,998,000 barrels of finished portland cement were on hand on October 31, 1956—48 percent more than the 8,754,000 barrels on hand on October 31, 1955. Stocks of clinker on hand October 31, 1956, totaled 6,757,000 barrels, an increase of 92 percent over the 3,514,000 barrels on hand October 31, 1955.

"With our EAGLE MATERIAL WASHING AND CLASSIFYING SET UP, *we're prepared for all comers"*, SAYS MOONEY BROS. SUPPLY CO., NEW CASTLE, PA.

Mooney Bros. Supply Co., established in 1925, requires a variety of aggregates for their own operations and for contractors and road builders in the area. They operate their own fleet of 12 ready-mix concrete trucks a concrete block plant, and hot or cold bituminous concrete plant. They also operate a quarry and do excavating and trucking.

1872 85th anniversary 1957

To meet their requirements for various specifications of sand, gravel or aggregate the six Mooney brothers depend on an EAGLE Washing-Classifying-Dehydrating Section at their sand and gravel plant. It consists of a 20' Water Scalping-Classifying Tank with Power-Operated Bleeder Valves and a 3-Cell Collecting-Blending Flume and two Single Screw Fine Material Washer-Classifier-Dehydrators; each handling a different gradation. With this set up they are prepared for all comers, they report.

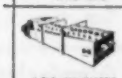
EAGLE has long specialized in aggregate processing equipment—Eagle has the broadest line of equipment to meet every need. You can profit from Eagle's experience. There's an Eagle factory-trained distributor nearby to serve you.

SEND FOR CATALOG AND NAME OF USER NEAR YOU!

The EAGLE LINE

FINE MATERIAL WASHERS

COARSE MATERIAL WASHERS


LOG WASHERS

WATER SCALPING—CLASSIFYING TANKS.

"SWINTEK" DREDGE LADDERS

COMPLETE DREDGES

BREAKER BALLS & PILE HAMMERS.

EXPERIENCE, PROGRESS, SERVICE, SINCE 1872

EAGLE IRON WORKS

133 HOLCOMB AVE., DES MOINES, IOWA

Charles Warner, 79, Dies—Warner Co. Executive Pioneer in Lime Industry

Charles Warner, chairman of the board of the Warner Company, Philadelphia, Pa., died on December 11, at the age of 79. Mr. Warner had been associated with the company for 57 years, serving as its president for 32 years.

Mr. Warner's career with the Warner Company, then known as the Charles Warner Company, began in 1899, and in 1901 he was given his first operating position as superintendent of the Cedar Hollow plant. In 1904 he was appointed a vice-president and director of the company, and in 1915, upon the death of his father, Alfred B. Warner, he became president, serving in this capacity until his retirement in 1948. From that time until his death he continued to serve as chairman of the board, a position he had held since 1916.

Under the leadership of Charles Warner, with the assistance of his brothers, A. D. Warner Jr. and Irving Warner, and the corps of men at the plants and offices, the enterprise grew from a small local firm in Wilmington, Del., to one of the largest producers of sand, and gravel, concrete, and lime products in the county.

Capitalizing on his knowledge and experience in his field, Mr. Warner helped to bring about the introduction of new products and improved production methods. He was the first to install and put into practical operation the so-called "Eldred Process" for tempering the flame in the calcination of lime in shaft kilns, and was the first to take license from Henry P. Dodge of Toledo, Ohio, for a process for the mechanical hydration of lime.

Charles Warner

In addition to guiding the activities of the Warner Company, Mr. Warner devoted a share of his energies to the lime industry. In 1902, as chairman of a committee to organize the lime industry, he became a co-founder of the National Lime Association. Later he served as president of N. L. A. at three different times. For 24 years he was a director of the North American Cement Corporation, and for 29 years a director of the Atlas Powder Company of Wilmington.

Lone Star-Superior Merger Approved by Officials Of Two Cement Companies

Directors of the Lone Star Cement Corporation and Superior Portland Cement, Inc., have approved a proposal for a merger. The transaction would be effected through the exchange of 1¾ shares of Lone Star Cement stock for each outstanding share of Superior. Stockholders of both concerns must vote on the proposal.

Addition of Superior would give Lone Star production and distribution facilities in the Puget Sound area, western Washington, and Alaska. Although it is one of the major cement producers, it has heretofore not operated facilities on the Pacific Coast. Lone Star plants are located in Alabama, Indiana, Kansas, Louisiana, New York, Pennsylvania, Texas, Virginia, three South American countries, and Cuba. Foreign operations account for about 29 percent of Lone Star's annual production of 38,000,000 bbl.

Superior is a leading producer in the Pacific Northwest, operating plants in Concrete and Seattle, Wash., and a quarry on Dall Island, Alaska. Its plants have a combined yearly output of about 2,700,000 bbl.

At Concrete, lack of storage capacity for finished cement caused officials to shut down all operations except the finish-grinding and packing departments for three months this winter. Full production was resumed on January 1, however.

Fred Glendening Joins Staff Of P.C.A. at Phoenix, Ariz.

The appointment of Fred Glendening as a representative of the Portland Cement Association, with headquarters in Phoenix, has been announced by John McNerney, Los Angeles district engineer of the organization. The Los Angeles district of the Portland Cement Asociation includes Arizona, southeastern Nevada and southern California.

Previous to accepting the position with the P.C.A., Mr. Glendening was county engineer of Maricopa County, Ariz.

He was graduated from the University of Arizona and was affiliated with the Arizona Highway Department for 12 years, serving as a resident engineer.

He was assistant district airport engineer in Arizona for the Civil Aeronautics Administration before joining the staff of Maricopa County. From 1943 to 1946 he was with the Bureau of Yards and Docks of the U. S. Navy.

ALAN J. VOLLMER, Detroit sales representative, has been appointed assistant Detroit district sales manager for the Huron Portland Cement Co.

Dr. Gerhard Seeger, and authority in the field of lime technology, passed away in October, 1956. Dr. Seeger was born in 1900, and followed his career in Germany.

At 25 he became chief engineer of the German Lime Manufacturers Association. Later he organized his own bureau. He served the industry for over 30 years in studying and improving hundreds of kilns. The Seeger kiln became the standard unit and was used almost exclusively in Germany.

Kyanite Processing Plant Built by Kyanite Mining Corp.

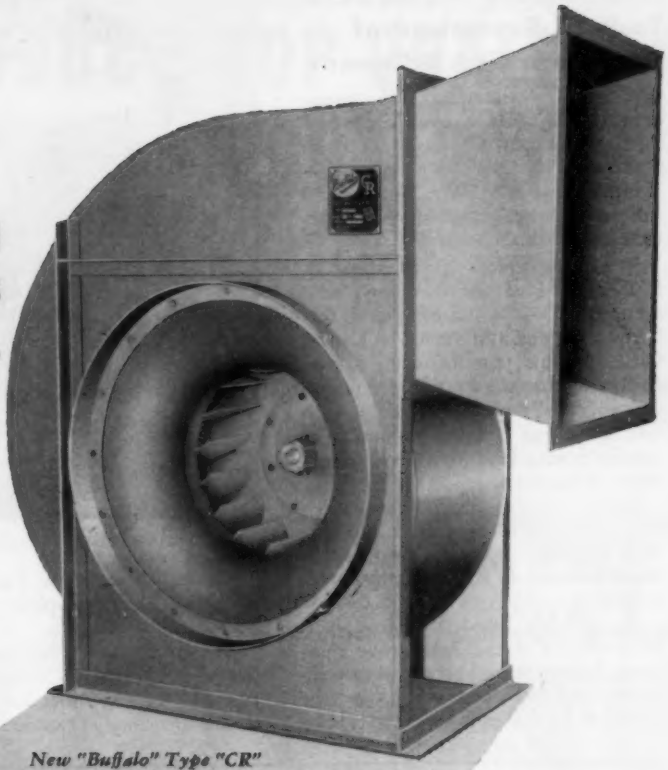
According to word from the Kyanite Mining Corporation, Cullen, Va., construction is proceeding on the firm's plant for the production of Kyanite at Willis Mountain, near Dillwyn, Va. Equipment includes crushers, storage bins, and a flotation plant. Completion of the facilities is anticipated in the immediate future.

Plans at present provide for the production of the company's base product, 35-mesh raw kyanite. Calcining and dry-grinding will be done at the present facilities at Cullen and Pamplin, Va.

CARLTON M. ROGERS has been elected vice-president of the Texas Portland Cement Company, Orange, Tex. Mr. Rogers is president of the Union Gypsum and Wall Board Company, Phoenix, Ariz., and president of the Pacific Rock and Gravel Company, Arcadia, Calif.

TO HANDLE HIGH DUST LOADINGS

— at high volume and pressure
— with unusual economy



New "Buffalo" Type "CR" Radial Blade Fan

• MECHANICAL EFFICIENCY above 78% over a broad range

Designed for rugged industrial service, the new "Buffalo" Type "CR" Fan has a highly desirable balance of efficiency and resistance to abrasion. Already proven an economical choice in the cement and steel industries, it has high volume, high pressure characteristics which often permit selection of a smaller fan for lower first cost.

The housing is completely streamlined, from its smooth inlet bell to the gradually diverging outlet — providing maximum static efficiency with reduced housing wear because of the minimized turbulence. The blades are radial at the tip, curving smoothly forward at the inlet to meet the air at the correct angle of attack, further contributing to peak performance with minimum blade wear.

From every standpoint — efficiency over a broad range — long life — freedom from troubles — economy — it will pay you to write for Bulletin FD 205 and investigate these superior new fans.

BUFFALO FORGE COMPANY

BUFFALO, NEW YORK

Canadian Blower and Forge Co., Ltd., Kitchener, Ont.

"Buffalo"

VENTILATING AIR CLEANING AIR TEMPERING INDUCED DRAFT HEATING EXHAUSTING FORCED DRAFT COOLING PRESSURE BLOWING

Heart Attack Proves Fatal To Pres. Sunderland of Ash Grove Lime & Cement

Allan B. Sunderland, 55, president of the Ash Grove Lime and Portland Cement Company, died on December 30, 1956, at a hospital in Kansas City, Mo. Mr. Sunderland suffered a heart attack six weeks before his death.

A son of Lester T. Sunderland, former head of the company, who died in 1955, Mr. Sunderland was born in Omaha and moved to Kansas City with his parents when a boy. Following his graduation from colledge Mr. Sunderland began with Ash Grove as a clerk in lime and cement plants. He progressed through every department.

Early in his career he was a territory salesman in central and northwest Missouri. Later he assumed the supervision of all the company's sales activities.

In 1946 Mr. Sunderland was elected president of the Ash Grove company, having served previously as secretary and vice-president. After the death of his father last year Mr. Sunderland and a brother, Paul Sunderland assumed complete executive leadership.

Allan B. Sunderland

Mr. Sunderland was a board member of the Portland Cement Association and a former member of the association's finance committee.

Vulcan Materials Co. Merged With New Jersey Concern

Officials of the Vulcan Materials Company (formerly the Birmingham Slag Company) of Birmingham, Ala., have announced the merger of this firm with the Vulcan Detinning Company of Sewaren, N. J. Products of Vulcan Materials include sand and gravel, crushed limestone, agricultural limestone, crushed granite, bituminized aggregate, concrete products, crushed slag, and ready-mixed concrete.

Officers of the new concern are as follows: Alfred C. Buttfield, Sewaren, N. J., chairman of the board; Charles W. Ireland, president; C. A. Barinowski, executive vice-president; Glen Ireland II, vice-president; and William H. Blount, vice-president (all of Birmingham); Raymond Lambert, Atlanta, vice-president; Edward W. Young, Sewaren, vice-president; Edmund B. England, Birmingham, controller; Richard F. Ray, Birmingham, treasurer; and E. E. Frost, New York City, secretary.

C. W. Ireland

C. A. Barinowski

J. C. Allen, V.-Pres.-Sales, Retires After 36 Years With Riverside Cement Co.

John C. Allen, vice-president in charge of sales for the Riverside Cement Company, Los Angeles, Calif., has retired from active employment after spending more than 36 years with the company.

Mr. Allen joined the Riverside Cement Company as a salesman in 1921, and was subsequently promoted to higher management positions within the company's sales organization. He has served as the company's chief sales executive since January, 1950.

Following his retirement, Mr. Allen will continue his association with Riverside Cement as a consultant.

Lawrence L. Conley, sales manager for the company, is now in charge of its sales organization.

Cement and Gypsum Facilities Of Kaiser Near Completion

Permanente Cement Company and its subsidiary, the Kaiser Gypsum Company, Oakland, Calif., have a number of plant-construction projects currently under way and near completion.

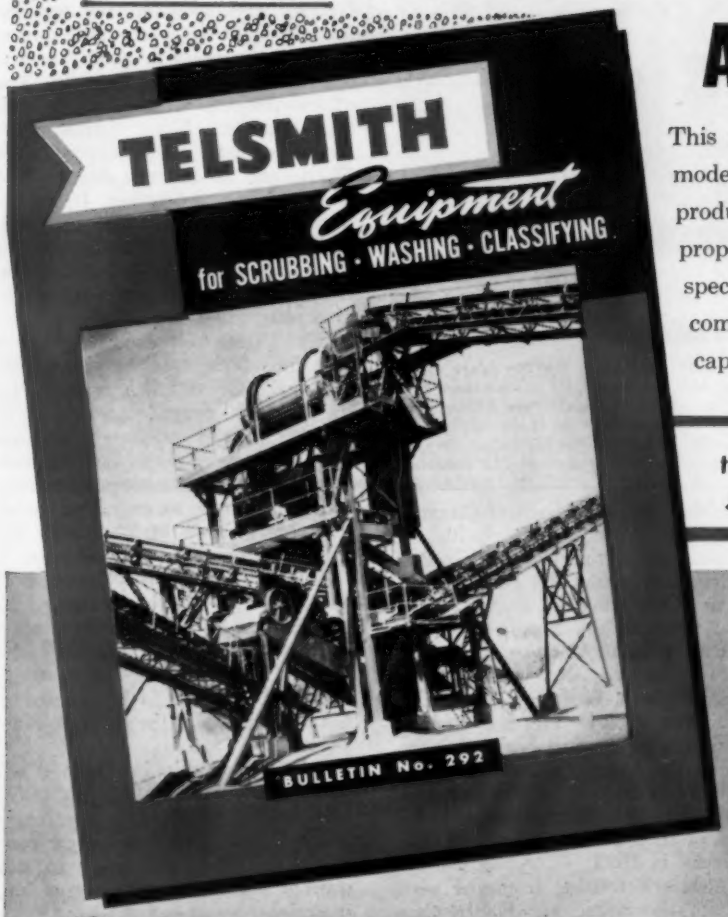
The 2,500,000-bbl. Lucerne Valley (Cushenberry) Calif., cement plant will be ready to start production late in March or early in April. It will mark the company's entrance into the southern California marketing area for the first time. A southern California sales office has already been opened in Los Angeles, with C. W. McKinley, a Permanente veteran of 11 years, in charge.

Engineering is proceeding on schedule for Permanente's newest venture at Scholle, N. M.; it will be that state's first cement plant. At this location, south and east of Albuquerque, exploratory drilling has been completed and tentative quarry areas have been mapped out. A well is currently being drilled on the property for plant water requirements. Construction will probably start early this summer, with completion scheduled for early 1958.

A new highway-material plant, to supply crusher-run-base blends principally in San Jose and Santa Clara counties, was completed in December, 1956, near the company's main plant at Permanente, Calif. Most of the required equipment was company surplus and already on hand. Capacity of the plant is about 400 t.p.h. The source of the raw material is low-grade limestone, from the

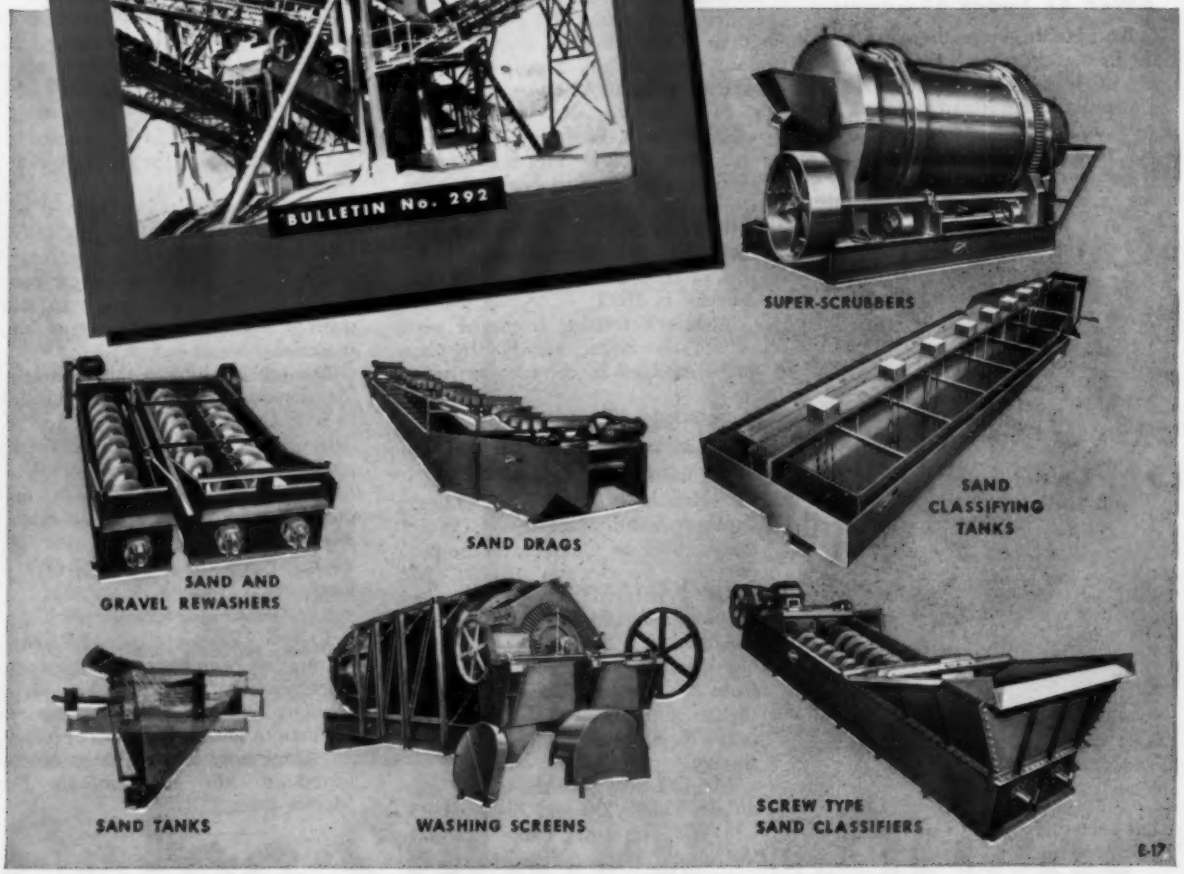
(*Continued on page* 32)

HOW TO PRODUCE TOP-QUALITY AGGREGATES



This new 20-page bulletin shows the most modern and most efficient machinery for producing top-quality aggregates of the proper gradation to meet the most strict specifications. Helpful pictures, tables and complete information including sizes and capacities.

this NEW book FREE
JUST ASK FOR No. 292



SMITH ENGINEERING WORKS

504 E. CAPITOL DRIVE **MILWAUKEE 1, WISCONSIN**

Representatives in Principal Cities in All Parts of the World • Cable Address: Sengworks, Milwaukee

Heart Attack Proves Fatal To Pres. Sunderland of Ash Grove Lime & Cement

Allan B. Sunderland, 55, president of the Ash Grove Lime and Portland Cement Company, died on December 30, 1956, at a hospital in Kansas City, Mo. Mr. Sunderland suffered a heart attack six weeks before his death.

A son of Lester T. Sunderland, former head of the company, who died in 1955, Mr. Sunderland was born in Omaha and moved to Kansas City with his parents when a boy. Following his graduation from colledge Mr. Sunderland began with Ash Grove as a clerk in lime and cement plants. He progressed through every department.

Early in his career he was a territory salesman in central and northwest Missouri. Later he assumed the supervision of all the company's sales activities.

In 1946 Mr. Sunderland was elected president of the Ash Grove company, having served previously as secretary and vice-president. After the death of his father last year Mr. Sunderland and a brother, Paul Sunderland assumed complete executive leadership.

Allan B. Sunderland

Mr. Sunderland was a board member of the Portland Cement Association and a former member of the association's finance committee.

Vulcan Materials Co. Merged With New Jersey Concern

Officials of the Vulcan Materials Company (formerly the Birmingham Slag Company) of Birmingham, Ala., have announced the merger of this firm with the Vulcan Detinning Company of Sewaren, N. J. Products of Vulcan Materials include sand and gravel, crushed limestone, agricultural limestone, crushed granite, bituminized aggregate, concrete products, crushed slag, and ready-mixed concrete.

Officers of the new concern are as follows: Alfred C. Buttfield, Sewaren, N. J., chairman of the board; Charles W. Ireland, president; C. A. Barinowski, executive vice-president; Glen Ireland II, vice-president; and William H. Blount, vice-president (all of Birmingham); Raymond Lambert, Atlanta, vice-president; Edward W. Young, Sewaren, vice-president; Edmund B. England, Birmingham, controller; Richard F. Ray, Birmingham, treasurer; and E. E. Frost, New York City, secretary.

C. W. Ireland

C. A. Barinowski

J. C. Allen, V.-Pres.-Sales, Retires After 36 Years With Riverside Cement Co.

John C. Allen, vice-president in charge of sales for the Riverside Cement Company, Los Angeles, Calif., has retired from active employment after spending more than 36 years with the company.

Mr. Allen joined the Riverside Cement Company as a salesman in 1921, and was subsequently promoted to higher management positions within the company's sales organization. He has served as the company's chief sales executive since January, 1950.

Following his retirement, Mr. Allen will continue his association with Riverside Cement as a consultant.

Lawrence L. Conley, sales manager for the company, is now in charge of its sales organization.

Cement and Gypsum Facilities Of Kaiser Near Completion

Permanente Cement Company and its subsidiary, the Kaiser Gypsum Company, Oakland, Calif., have a number of plant-construction projects currently under way and near completion.

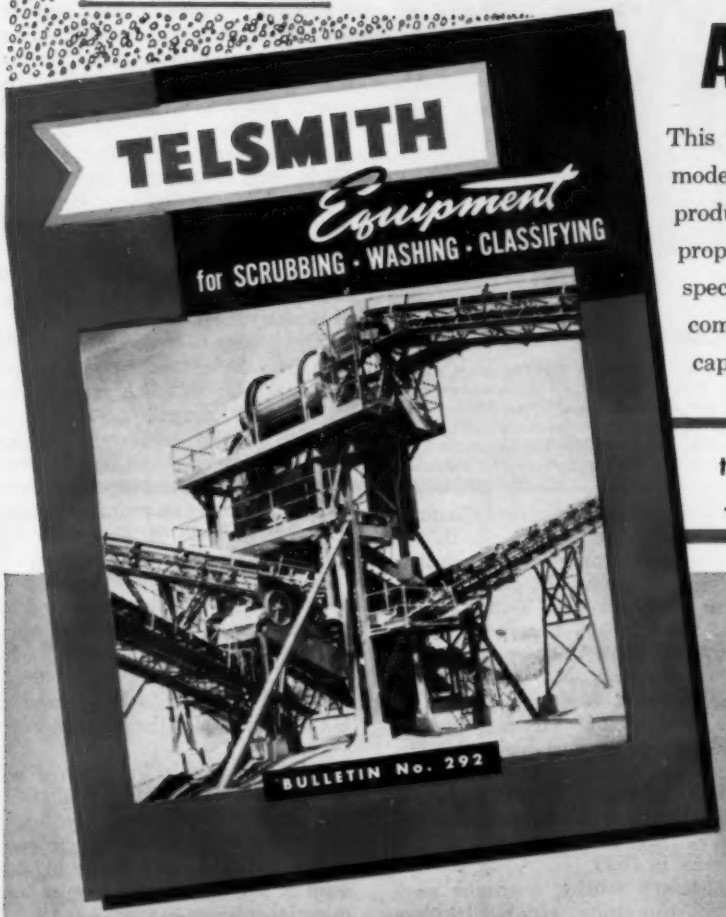
The 2,500,000-bbl. Lucerne Valley (Cushenberry) Calif., cement plant will be ready to start production late in March or early in April. It will mark the company's entrance into the southern California marketing area for the first time. A southern California sales office has already been opened in Los Angeles, with C. W. McKinley, a Permanente veteran of 11 years, in charge.

Engineering is proceeding on schedule for Permanente's newest venture at Scholle, N. M.; it will be that state's first cement plant. At this location, south and east of Albuquerque, exploratory drilling has been completed and tentative quarry areas have been mapped out. A well is currently being drilled on the property for plant water requirements. Construction will probably start early this summer, with completion scheduled for early 1958.

A new highway-material plant, to supply crusher-run-base blends principally in San Jose and Santa Clara counties, was completed in December, 1956, near the company's main plant at Permanente, Calif. Most of the required equipment was company surplus and already on hand. Capacity of the plant is about 400 t.p.h. The source of the raw material is low-grade limestone, from the

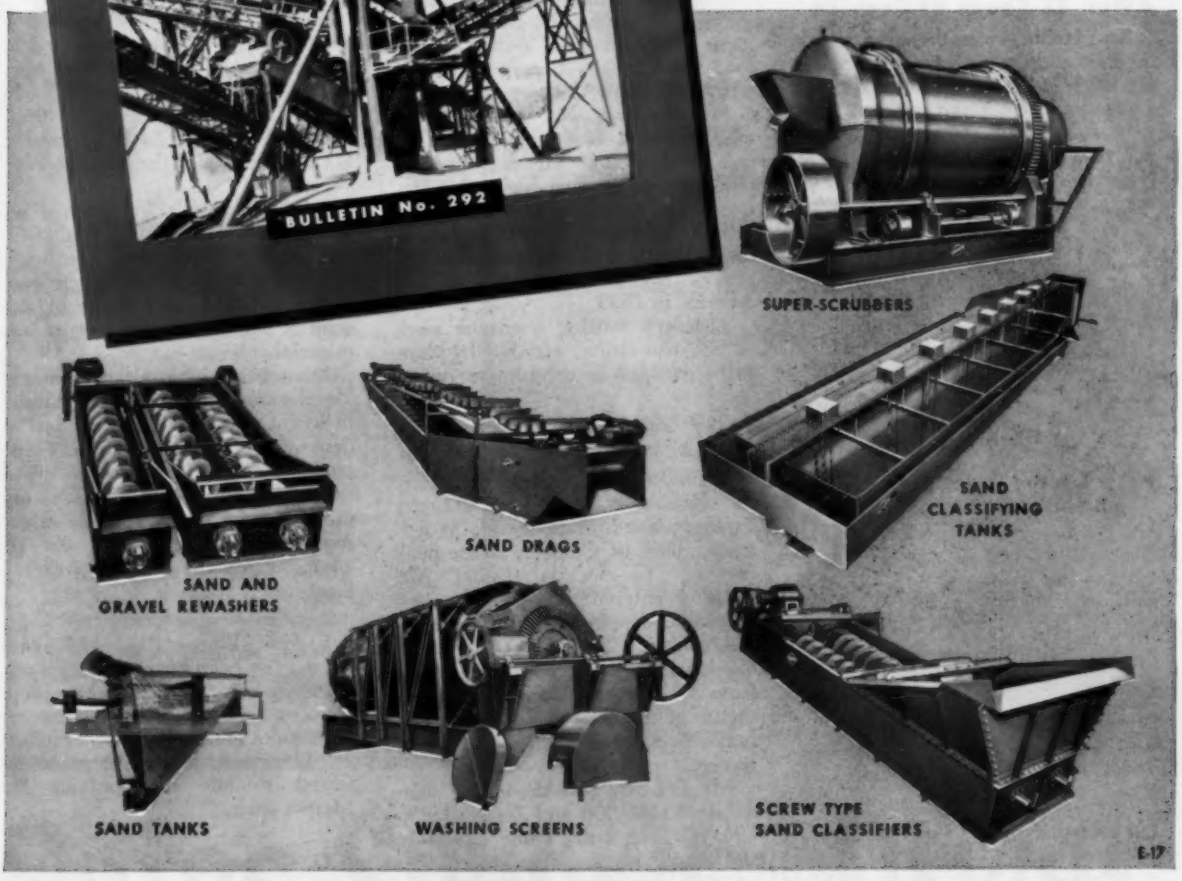
(*Continued on page* 32)

HOW TO PRODUCE TOP-QUALITY AGGREGATES



This new 20-page bulletin shows the most modern and most efficient machinery for producing top-quality aggregates of the proper gradation to meet the most strict specifications. Helpful pictures, tables and complete information including sizes and capacities.

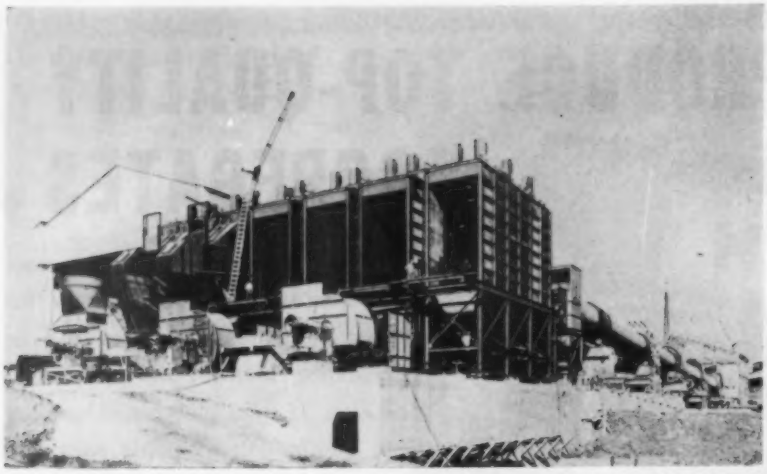
this NEW book FREE
JUST ASK FOR No. 292



SMITH ENGINEERING WORKS

504 E. CAPITOL DRIVE **MILWAUKEE 1, WISCONSIN**

Representatives in Principal Cities in All Parts of the World • Cable Address: Sengworks, Milwaukee



● This illustration shows some of the equipment already installed in the new plant of the Lehigh Portland Cement Company at Union Bridge, Md., which will be in operation early this year. At the right is one of the three 3,000-bbl. per day F. L. Smidth rotary kilns. These are 11 ft. 6 in. in diameter and 400 ft. long. In the foreground are the Koppers Company electrostatic precipitators which will clean the dust-laden gases from the kiln before they are released to the atmosphere. They will operate in conjunction with mechanical dust collectors.

Sam Hobbs of P.C.A. Staff Retires at Los Angeles After 33 Years of Service

Sam Hobbs, veteran engineer with the Portland Cement Association, has retired after 33 years with the organization. He spent all but four years in the Los Angeles district office. His official retirement came in November, when he was honored by the association at a dinner meeting attended by the Los Angeles office personnel.

Sam Hobbs

A native of New England, Mr. Hobbs was graduated from Dartmouth College in 1912 and from the Thayer School of Engineering at Dartmouth in 1913. He worked for the Massachusetts Highway Commission and as an engineer with the Rowe Construction Company in Boston before joining the Portland Cement Association in Boston. After four years in the Boston office, he went to Los Angeles.

Mr. Hobbs is well known in engineering and construction circles on the West Coast. He was general chairman of the first regional meeting of the American Concrete Institute in Los Angeles in 1954 and is the local chairman for the annual meeting of A.C.I. to be held in Los Angeles in 1959.

Although retiring from the work of the association, Mr. Hobbs plans to be engaged in consultation work.

Lucky Guesser Wins Free Trip To L.A. in Election Contest

A guesstimate paid off handsomely for Ronald O'Leary of O'Leary Brothers Sand and Gravel, Woodstock, Ill. Last October, at the peak of the pre-election furor, Mr. O'Leary entered a guessing contest sponsored by the Eagle Iron Works. He filled in a "Presidential Contest" blank which appeared in the *News from the Eagle's Nest*, giving his estimate of the total votes each of the major presidential contestants would receive.

Mr. O'Leary gave the G.O.P. candidate 35,690,000 and his rival 25,690,000. His entry came closest to the actual result (Eisenhower, 35,582,236; Stevenson, 26,028,887); so he was the winner of the first prize—a free trip to the National Sand and Gravel Association convention in Los Angeles.

New Raw Material Sources Acquired by Natl. Gypsum To Supply Rising Demand

According to a report issued by the National Gypsum Company, approximately $5,000,000 were spent during the last two years in acquiring and opening new mineral deposits. The major projects were gypsum beds near Halifax, Nova Scotia, Fort Dodge, Iowa, and Tawas City, Mich., and an asbestos deposit near Thetford Mines, Quebec. It was indicated that the two massive deposits at Tawas City and Halifax are the most important developments of National Gypsum within the last several years.

The Tawas City deposit is said to contain sufficient gypsum to supply National's Great Lakes market "for the next 100 years." Because of its location (at the entrance of Saginaw Bay), the material can be transported by water to plants in major Great Lakes markets at an estimated saving in freight charges of more than $1,000,000 annually to the company.

After proving the new deposit near Tawas City, plans were presented for opening it with a large quarry operation. Docks and ship-loading facilities are to be constructed to supply new mills — one to be located at Lorain, Ohio, and the other at Waukegan, Ill.

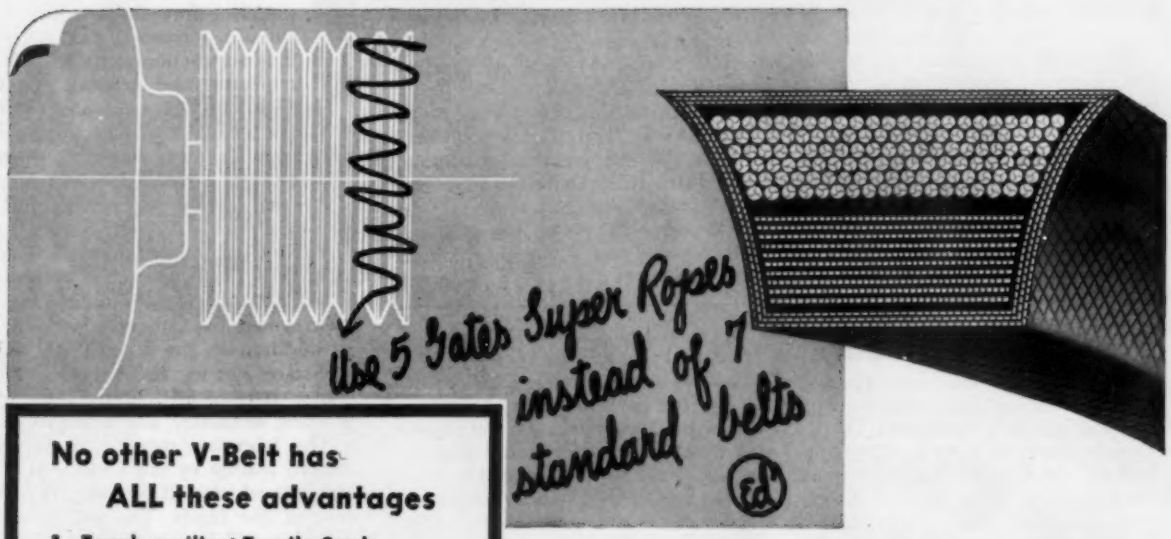
Asbestos deposit in Quebec will permit low-cost, open-pit mining. In addition to facilitating control of quality, this operation, when completed in 1958, will result in substantial savings in the cost of raw material.

Because of the constantly increasing demands for building materials in recent years, both gypsum and asbestos reserves have been greatly depleted, and it became necessary to find new sources. Geologists and mining engineers have been conducting extensive exploration for the company for the last four years to locate such reserves.

LLOYD EILBERT of Mankato, Minn., has been appointed sales representative for Hawkeye-Marquette Cement Company in southeastern Minnesota area. Mr. Eilbert replaces Al Thedens, who has been transferred to the metropolitan Des Moines area.

O. L. TAETZ, president and manager of Oliver L. Taetz, Inc., Gray Summit, Mo., was recently elected president of the Missouri Limestone Producers Association to serve the calendar year of 1957.

Get more HP delivered per $ of drive cost



No other V-Belt has ALL these advantages

1. Tough, resilient Tensile Cords

Super-strength tensile cords provide 40% greater horsepower capacity . . . easily absorb heavy shock loads . . . reduce number of belts required . . . save weight and space.

2. Concave Sidewalls (U.S. Pat. 1813698)

Concave sides (Fig. 1) increase belt life. As belt bends, concave sidewalls become straight, making uniform contact with sheave groove (Fig. 1-A). Uniform contact means less wear on sides of belt . . . far longer belt life.

3. Flex-Weave Cover (U.S. Pat. 2519590)

A Gates exclusive provides greater flexibility with far less stress on fabric. Cover wears longer . . . increases belt life . . . more power available to driven machine.

4. High Electrical Conductivity

Built into Gates Super Vulco Ropes for safer drives (in explosive atmospheres).

5. Oil, Heat, Weather Resistant

Special rubber compounds make Super Vulco Ropes highly resistant to heat, oil, and prolonged exposure.

Cut sheave width and weight with Gates Super Vulco Ropes

You save on cost of iron . . . you reduce bearing width and support . . . you save space and overall cost . . . when you design a drive using Gates Super Vulco Ropes. Here's why:

5 Gates Super Vulco Ropes do the work of 7 standard V-belts

That's because Gates Super V-Belt has 40% more horsepower capacity than standard belts. Therefore, you can reduce sheave width and weight . . . cut cost.

A wealth of drive data is quickly available to you. Simply call your nearby Gates V-Belt Distributor (see 'phone book yellow pages) for a Gates V-Belt specialist. Stocks available in industrial centers around the world. The Gates Rubber Co., Denver, Colorado—*World's Largest Maker of V-Belts.*

The Mark of Gates Specialized Research

TPA 91 A

Gates Super VULCO ROPE Drives

Year-Round Construction Expedites Work on Plants Of Canadian Cement Firms

Construction on two Canadian cement manufacturing facilities is continuing at a strong pace during the winter months, it has been reported. The Lake Ontario Portland Cement Company plans to ship commercial aggregate from its Picton, Ont., location when navigation reopens on Lake Ontario. Production of cement is scheduled by August or September.

Clearing of the site for the 1,800,000-bbl. plant at Picton has been completed, and several utility buildings and 10 of 12 kiln piers have been constructed. A substantial amount of quarry and production equipment has already been delivered.

At Lulu Island, Vancouver, Lafarge Cement of North America Ltd. has awarded four construction contracts with a total value of more than $2,000,000, according to recent reports. This 1,300,000-bbl. plant is scheduled to be in operation early in 1958. Lafarge Cement is a subsidiary of the French-based Lafarge Group, one of the world's largest cement producers.

The Rochester Portland Cement Corporation, a subsidiary of the Lake Ontario Company, has leased property from the Toronto Harbor Commission for the erection of storage and distribution facilities. The firm also has an option for a tract at Rochester, N. Y., where the construction of silos and a bagging plant is contemplated.

Expansion Program Finished At Oregon Portland's Plants

An expansion and modernization program costing more than $6,000,000 has just been completed by the Oregon Portland Cement Company, making the firm the largest cement manufacturer in the Pacific Northwest. The company's plants, located at Oswego and Lime, Oreg., now have an annual capacity in excess of 3,000,000 bbl. Expansion of the facilities has been in progress for more than a year.

At the Oswego plant production has been increased 60 percent. This has been accomplished by installing a new kiln, grinding equipment, cement coolers, a stack, an extensive dust-collecting system, and a modern packing and loading department. The total expenditure at the Oswego unit was approximately $3,100,000.

At Lime, production has been more than doubled, and the entire plant has been enlarged and modernized at a cost of $3,000,000.

Purpose of the expansion program, according to Frank E. McCaslin, president, is to keep pace with the continuing high level of construction activities in the Pacific Northwest states served by the firm.

Founded in 1916, Oregon Portland Cement now has 375 employees and an annual payroll estimated at $1,650,000.

In addition to plants at Oswego and Lime, the company has extensive lime deposits elsewhere in Oregon.

These kilns were added in the multimillion-dollar modernization program of Oregon Portland Cement Company.

Nomination of B. D. Tallamy As Federal Roads Chief Approved by Senate Group

The nomination of Bertram D. Tallamy of New York as federal highway administrator has been unanimously approved by members of the Senate Public Works Committee. In a speech before the committee, Mr. Tallamy promised action to speed the construction of the 41,000-mile interstate road network.

Mr. Tallamy, a graduate engineer, has been chairman of the New York State Thruway Authority since 1950, and is a former superintendent of the New York department of public roads.

As federal administrator, Mr. Tallamy will supervise the 13-year, $51,000,000,000 road building program voted by Congress last year. In addition to the $33,000,000,000 interstate system, the program includes stepped-up construction of primary, secondary, and urban roads.

The interstate system will be financed mainly by the Federal Government which will provide 90 percent of the funds. The rest of the program will be aided by the Federal Government on a 50-50 basis.

Cement and Gypsum Facilities

(*From page* 28)

Permanente deposits, which is not quite suitable for cement manufacture but still top quality for roadbase use.

The second unit of Kaiser Gypsum's wallboard and plaster plant at Antioch, Calif., should be in operation by March 1 or shortly afterward, according to company officials. Date of completion has been delayed somewhat, due principally to the steel strike of last summer.

The new ore carrier, *S.S. Kaiser Gypsum,* launched last August in Japan, is expected to be completely fitted and ready for a shakedown cruise about March 15. Self-loading and self-unloading, the vessel will have a capacity of 17,000 tons of crude gypsum and will go into regular service between the quarry at San Marcos Island and the company's gypsum plants at Long Beach, Antioch, and Seattle. Expansion and modernization of the San Marcos facilities is practically complete. Major units in this project include a new wharf capable of handling the largest ore ships, enlargement of the stockpile area, and increased crushing capacity, and modernization of the loading equipment. These improvements will bring the loading capacity to 1,000 t.p.h.

since 1919 "Tool Steel Process" hardened products have established satisfactory service records in plants of the Lone Star Cement Corporation. They have effected savings in maintenance, replacement and downtime costs.

Lone Star uses many TSP Hardened Products including pins, bushings, herringbone ring gears, sheaves, bevels for kilns, screw conveyor gudgeons and bearings, shafts, track wheels, screw conveyor drive gearing, crane and general gearing, herringbone shaft pinions, brake wheels; ball, rod and masonry mill pinions.

TSP shines at LONE STAR

TSP products are hardened by our special process. The file hard surface to full depth of permissible wear gives maximum life. The core refined for toughness and ductility gives a maximum strength. Each TSP product carries a written guarantee that it will give a longer life in the same service than any other product.

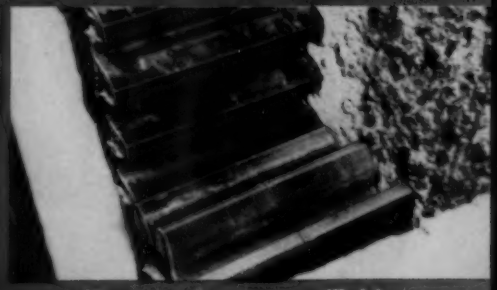
THE TOOL STEEL GEAR AND PINION CO

The Standard of Quality Since 1909
for Gears • Pinions • Rolls • Wheels and Other Hardened Products

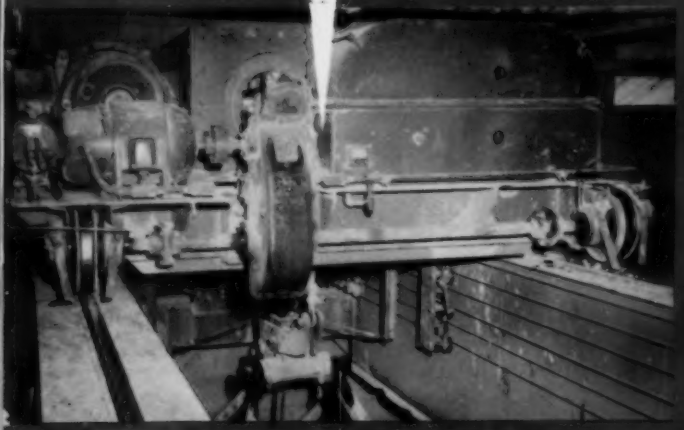
Printed in U.S.A.
AD 1022-A

TSP Sheaves on overhead cranes

TSP Gudgeons and Bearings on screw conveyors



Close-up of masonry mill drive pinion and bull gear



TSP Wheels and Gearing on 3 yd. bucket cranes

TSP Drive Pinions on rod, ball and masonry mills

at Pacific Building Materials, Portland Oregon . . .

UP GOES ANOTHER **SAND PREP**

No. 8 in a series of steady WEMCO producers

1956 addition to this Portland company's sand recovery operation is the 36-inch Wemco Sand Preparation Machine being installed above. It has an outstanding performance record to live up to! For instance, since the first of 7 similar Wemco units went into operation in 1948, plant manager Howard Hamlin reports that to date **"Only $33 worth of spare parts have been ordered."** But the real story of Pacific's continued use of Wemco Sand Preparation Machines lies in their ability to invariably produce specification materials under all feed conditions. Wemco's slow-speed, multiple-pitch spirals, operating in a large, quiet pool, insure the recovery of the desired fine (150 mesh) sand without a sacrifice in raking capacity. This unbeatable combination of low-operating costs and specification sand spell profits for Pacific on every one of their 8 Wemco units. They can do the same for you.

Send Wemco your sand problems for profitable solutions.

WEMCO®
WESTERN MACHINERY COMPANY

650-K FIFTH STREET • SAN FRANCISCO 7, CALIF.

Representatives in principal cities of the United States and Canada and in major countries throughout the world.

Interstate, Defense Routes Located for More Than Half Of New Highway System

According to an announcement made by John A. Volpe, federal highway administrator of the Department of Commerce, the detailed location of over half the mileage on the National System of Interstate and Defense Highways has now been established.

Several states have determined the exact location of over 75 percent of their portion of the 40,000-mile system of expressways, including Arkansas, Colorado, Connecticut, Kansas, Maine, Massachusetts, Minnesota, Mississippi, Missouri, New Hampshire, New Mexico, Dakota, Oklahoma, Rhode Island, South Dakota, Tennessee, Texas, and Vermont, as well as the District of Columbia.

Post at Brazilian Institute Accepted by S. S. Steinberg

At a joint meeting of the boards of directors of the National Sand and Gravel Association and the National Ready Mixed Concrete Association, Professor S. S. Steinberg, Dean of the College of Engineering, University of Maryland, announced that he would leave the university to accept the presidency of the Brazilian Institute of Technology for Aeronautics in the State of Sao Paulo, Brazil.

The associations have conducted several research programs in cooperation with the University of Maryland.

The two boards adopted a resolution expressing their regret that Dean Steinberg is leaving the university and conveying their appreciation and best wishes to him for the future.

Cris Dobbins, president of the Ideal Cement Company, recently announced that prices have been raised from 10 to 25 cents per barrel, as of January 1. The increase was 10 cents at Portland, Oreg., and Boettcher, Colo.; 15 cents at Mobile, Ala., Ada, Okla., Superior, Nebr., and Redwood City and San Juan Batista, Calif.; 20 cents at Okay, Ark.; and 25 cents at Houston, Tex.

Espanola de Cementos, S.A., has been authorized to erect a plant for the production of slag cement at Castro Urdiales (Santander), Spain. This facility will have a capacity of 60,000 tons annually.

WORKERS RELY ON CROSBY CLIPS

THIMBLES INCREASE ROPE LIFE, SAFETY

Unless protected by a thimble, wire rope can be seriously damaged by heavy lifts that crush the strands at the load point. A light thimble can collapse and damage the rope. For positive rope protection and safety, specify Crosby Laughlin heavy plow steel thimbles with the extra heavy steel section design that stands up under maximum loads. Plow Steel Thimbles are available in sizes to fit ¼″ to 2¼″ wire rope. Stainless Steel Thimbles are offered in selected sizes.

Rigging a cable way 600 feet in the air demands the best fittings available to protect men and materials. This crew is assured of maximum safety because their work platform is secured with genuine Crosby* Clips. This clip, quickly identified by the "Red U-Bolt*" is the number one choice on every job where maximum safety and holding power is essential. Look for the red U-bolt—you'll see it securing wire rope in every industry! And Crosby is the *only clip* available in sizes to fit every rope from ⅛″ to 3″! Proved design and quality controlled manufacture—finest steel, drop forged base, galvanized—results in consistently reliable performance.

From one source, Crosby Laughlin Lebus, you get the world's most complete line of fittings: Crosby Clips and "Load Rated" Blocks; Crosby-Laughlin drop forged shackles, hooks, Missing Links*, turnbuckles, thimbles, and other fittings; famous drop forged Lebus Loadbinders and drop forged Snatchblocks! Your Crosby Laughlin Lebus Distributor is your one stop fittings supplier—see him next time you need *any* fittings!

*REGISTERED TRADEMARK

World's Most Complete Line of Fittings For Wire Rope and Chain

CROSBY LAUGHLIN LEBUS

FORT WAYNE 1, INDIANA

LOOK! NEW FORD

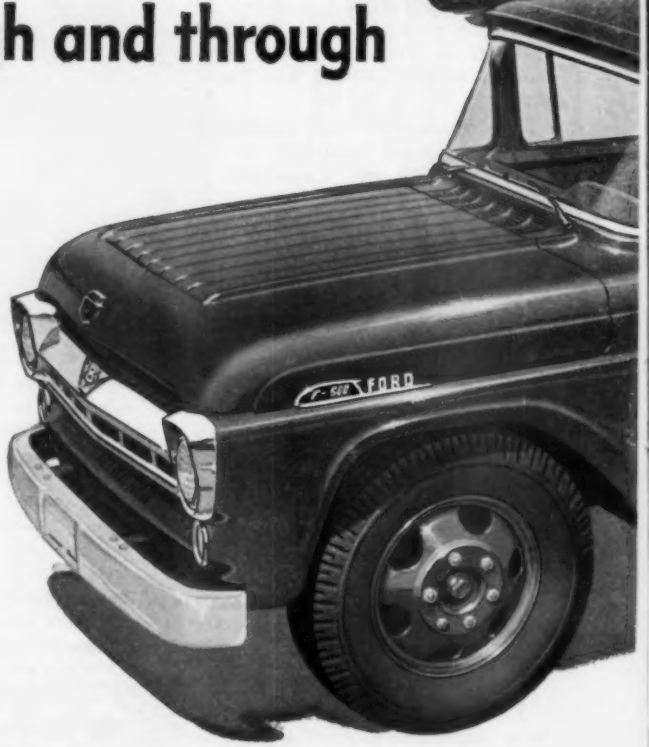
The boldly modern styling you see in new Ford trucks for '57 only *hints* at how deep-down modern they really are!

These deep-down modern Fords bring you important new advances in power, more durable frames, stronger axles and springs, and completely new stronger cabs with structural design improvements.

'57 Ford trucks are so modern . . . *so new* you've just got to see what they can do. Get in touch with your Ford Dealer now.

LOOK again!

They're modern through and through



NEW cabs—completely new—stronger, roomier, smarter! New wider full-wrap windshield. New inboard cab step, new Hi-Dri ventilation, new easy-to-read instrument panel!

NEW hydraulic clutch, standard in all models from pickups to tandems. Easier to operate—works like hydraulic brakes. Clutch and brake pedals are suspended type for extra driving ease!

NEW Styleside pickup bodies, standard at no extra cost. America's biggest pickup bodies! Built wider with all-steel rugged box-section corner reinforcements and recessed taillights. Side loading's far easier with full-width body.

NEW riding comfort! A completely new suspension, big roomy cabs with increased visibility, greatly improved riding and handling ease.

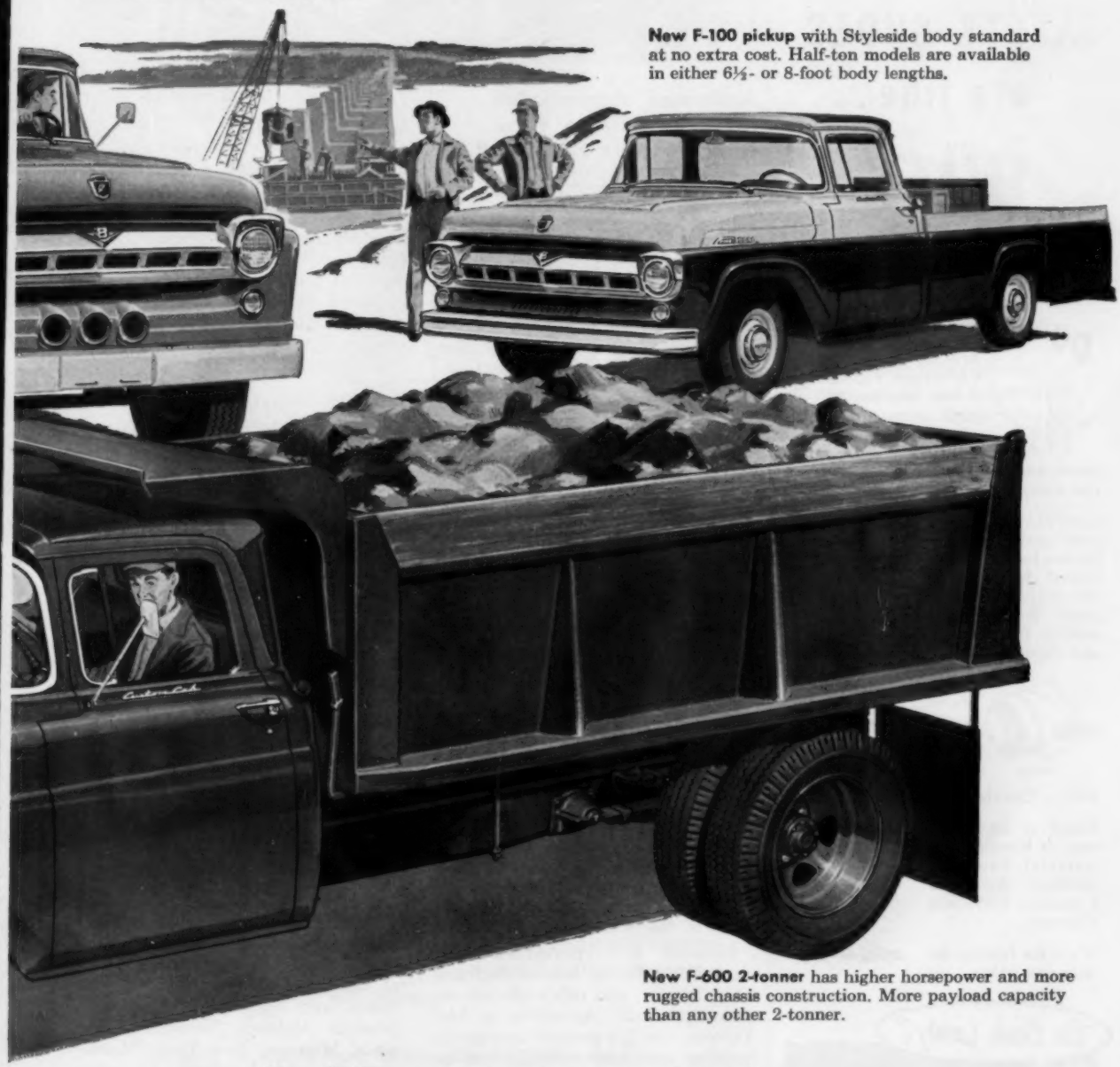
NEW chassis and body strength! New frames, up to 13% stronger. New sturdier axles! New higher capacity springs! New stronger, more durable cabs.

NEW power advances! New higher horsepower, new freer breathing, new higher compression, new Super-Filter air cleaner. New advancements from camshafts to carburetors! Modern Short Stroke design in every engine—V-8 or Six.

TRUCKS for '57

New T-800 Tandem, 45,000-lb. GVW. High torque 212-hp V-8 engine, 4-barrel carburetor and power steering, standard at no extra cost.

New F-100 pickup with Styleside body standard at no extra cost. Half-ton models are available in either 6½- or 8-foot body lengths.



New F-600 2-tonner has higher horsepower and more rugged chassis construction. More payload capacity than any other 2-tonner.

For '57 and the years ahead –

FORD TRUCKS COST LESS

. . . LESS TO OWN . . . LESS TO RUN . . . LAST LONGER, TOO!

SAFETY SHOES are fine . . .

BUT!

Safety shoes can save your feet, but they can be tough on weigh-batch hoppers . . . or any other type of bin or chute. The firm vibrating action of a Cleveland Vibrator is the modern, efficient way of stopping bridging or arching before it starts, and keeping granular material moving.

Cleveland pneumatic and electric vibrators have been designed for use on weigh-batch hoppers. Both these models include standard brackets and clamps for fast easy installation.

Pneumatic

Electric

Bridging of sand, gravel, cement, or even wet concrete; in the weigh-batch hopper is broken up quickly and quietly with a Cleveland Vibrator.

There is no better way to handle bulk material handling problems than with a modern Cleveland Vibrator.

Write for further details and prices.

2710 Clinton Ave. • Cleveland 13, Ohio

This new building of the American Aggregates Corporation at Greenville, Ohio, is the firm's home office.

American Aggregates Invites Public to View New, Modern Home Office

On November 21, 1956, the American Aggregates Corporation held a public showing of its new home office, located in Greenville, Ohio. The modern building, resembling a fine home, is appropriate for the residential area in which it is siutated.

The home of American Aggregates houses the executive and administrative offices and the accounting and engineering departments of the firm's widely scattered operations.

Ground was broken for the new building on May 1, 1955, and construction was completed on June 10, 1956. The new building was erected because of the crowded conditions at the firm's former headquarters.

13-Year Road Plan No Cinch—But Experts Have Solutions

Problems—some of them possibly serious in their effect—have beset the proposed federal super-highway program authorized by President Eisenhower last June. Already the cost of the program has risen $1,000,000,000 beyond the original figure. A steel shortage has hit the project; construction costs are rising; there is a shortage of engineers; then there is the thorny issue of state toll roads; and 1,000 miles of the network remain to be charted. Those are only a few of the trouble spots.

However, it is reported that Bertram D. Tallamy, federal highway administrator, and other officials remain optimistic. According to Mr. Tallamy, the 3.8 percent increase in building costs and materials can be wiped out over the 13-year period of the program. He believes that manufacturers who must produce 49,000,000 tons of steel and 1,000,000,000 bbl. of cement will "find a way"; they have a guaranteed market for 13 years.

As for costs, the new techniques developed will reportedly cut man-hours per job in half. To atone for the engineering shortage, the planning phase will be shortened and more aerial surveys will be used. In addition, radio communication and electronic computers will free engineers from desk work; and technicians will be specially trained to do "semi-professional" jobs.

A.S.T.M. Offers Supplement To Building Code Standards

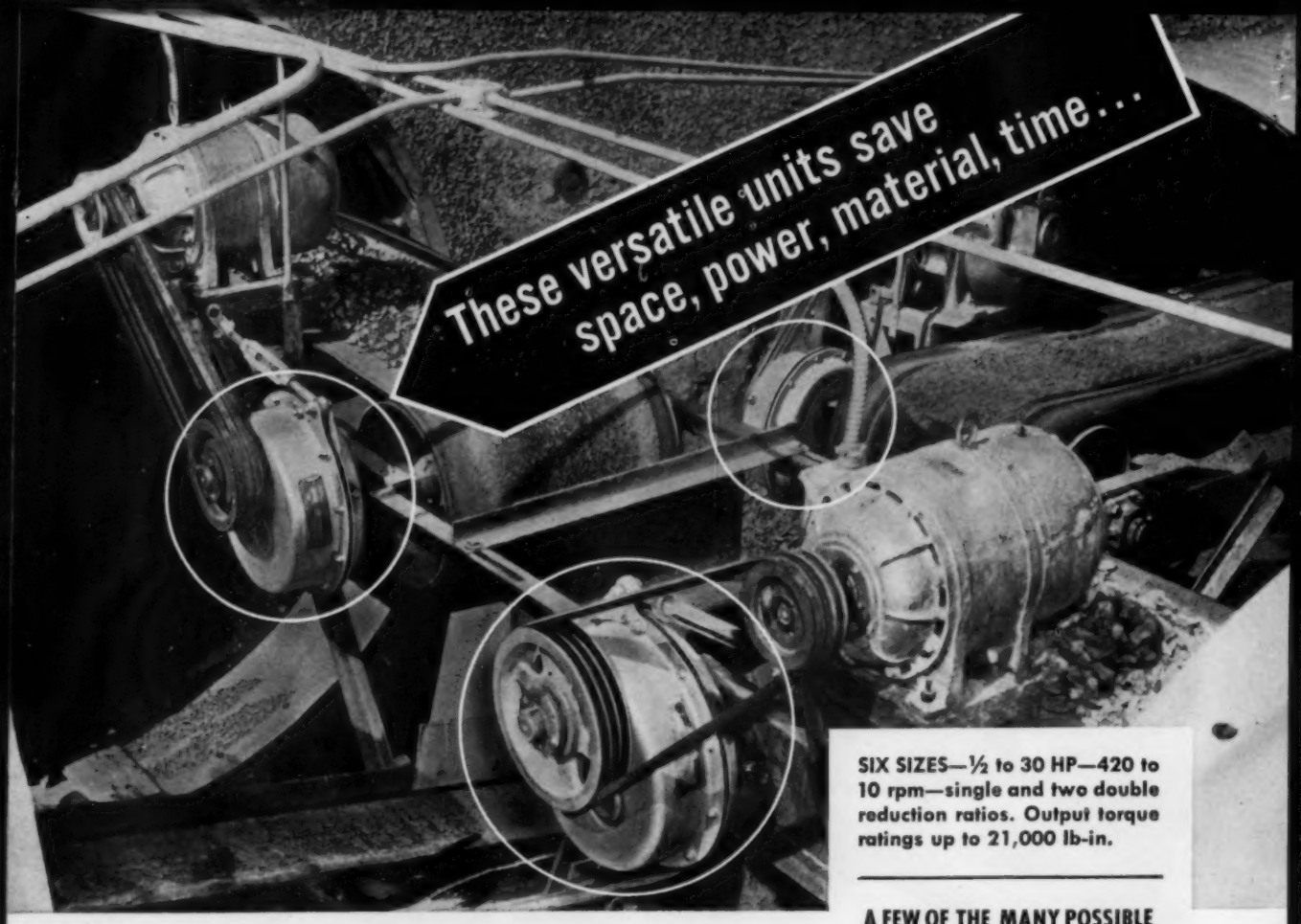
The 1956 Supplement to the 1955 Compilation of A.S.T.M. *Standards in Building Codes,* published by the American Society for Testing Materials, is now available. Revisions and new A.S.T.M. standards for construction materials which have been accepted since the publication of the 1955 edition are included.

Together, the 1955 compilation and the 1956 Supplement cover the full range of construction materials, including structural and reinforcing steel, steel, cast iron and copper pipe, building units, bituminous roofing, cement, gypsum and ready-mixed concrete.

Price, $2.75 per copy. Apply to A.S.T.M. Headquarters, 1916 Race St., Philadelphia 3, Pa.

The Georgia Marble Company, Tate, Ga., plans to spend $1,400,000 on an extensive expansion program. Included will be the modernization of machinery and expansion of plants and quarries located in Georgia, Alabama, Tennessee, Virginia, Missouri, New York, Massachusetts, and Vermont. Directors also authorized a $108,000 advertising campaign for this year.

The Zonolite Company, Chicago, Ill., will expand facilities at its Atlanta, Ga., plant for the manufacture of perlite.



SIX SIZES—½ to 30 HP—420 to 10 rpm—single and two double reduction ratios. Output torque ratings up to 21,000 lb-in.

FALK ALL-STEEL Shaft Mounted Drives

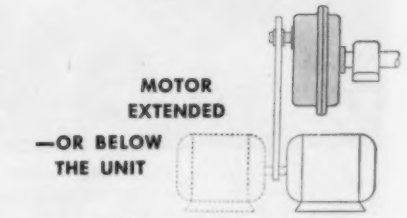
The photograph above typifies the way FALK Shaft Mounted Drives furnish the economical solution to problems of efficient speed reduction in a limited space. Within their rated capacities, these versatile reducers are designed to drive any machine and to fit any space requirement.

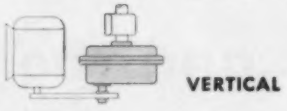
FALK Shaft Mounted Drives mount on the driven shafts and are connected by V-belt or chain to any convenient rotating power source. Unlimited choice of output speeds between 420 and 10 rpm is made possible by varying the ratio of driving sheaves or sprockets.

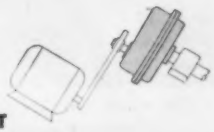
These units, with precision-cut gears of highest efficiency, use a minimum of power. They need no adjustable motor bases or slide rails; thus they save material. And, because they are readily available and easily installed or moved, they save time. Best of all, they are backed by FALK's unmatched experience in precision-gear manufacture.

Promptly available from factory and distributor stocks, from *coast to coast*. Ask your Falk Representative or Distributor for details—or write us for **Bulletin 7101.**

A FEW OF THE MANY POSSIBLE DRIVING ARRANGEMENTS







THE FALK CORPORATION, 3001 W. CANAL ST., MILWAUKEE 1, WIS.

Representatives and Distributors in Most Principal Cities

Manufacturers of

- Motoreducers
- Speed Reducers
- Flexible Couplings
- Shaft Mounted Drives
- High Speed Drives
- Special Gear Drives
- Single Helical Gears
- Herringbone Gears
- Marine Drives
- Steel Castings
- Weldments
- Contract Machining

FALK

...a good name in industry

Tumbling terrain buried more than 500 feet of 5-year-old Anaconda 3/0 Awg SH-D Shovel Cable. Despite accident, cable continued to supply power without interruption to giant shovel.

...and the wall came tumbling down

When this 90-foot wall came down unexpectedly, a five-year-old length of Anaconda 3/0 SH-D Shovel Cable was buried under thousands of tons of jagged rock.

Yet – *after ten days* – the cable and shovel it supplied continued to operate! Later, the cable was relocated–and is still giving service.

NEW BUTYL INSULATION

Longer life, better performing cable is the result of advanced engineering and manufacturing know-how that go into all Anaconda mine cables. Securityflex* Type SH-D Shovel Cable, for instance, is made with high-grade butyl insulation that withstands ozone, heat and moisture. Neoprene jacket is extremely tough and abrasion-resistant. Patented rubber cores cushion the ground wires and help prevent breaks.

Safety and economy of Anaconda cables have been proven in mines all over the world. The *Man from Anaconda* will be glad to help you on any cable problem. For cable, see your Anaconda distributor. And for copy of booklet, "*. . . and the wall came tumbling down,*" write: Anaconda Wire & Cable Company, 25 Broadway, New York 4, New York.

*Reg. U. S. Pat. Off. 56129

ASK YOUR DISTRIBUTOR FOR

Sharp corner of rock caught and held taut the Anaconda Shovel Cable – but didn't break it.

Giant rock scissors pinched the cable in viselike grip without damage to insulation or ground wires.

Like a guillotine, yet tons of rock did not puncture cable nor interrupt flow of power to the shovel.

Rockfall crushed and partially buried the cable all along its length – but not a single break occurred.

ANACONDA® MINE CABLE

Washington News Letter

(From page 12.)

state System the requirement that most grade crossings be avoided means that bridges and cross-over structures will have a large place in the construction pattern. Thus, materials requirements will be similar to those for toll roads, involving larger quantities of steel than needed for other types of roads. The major supply problem expected to develop is for wide-flange structural shapes. Although the steel industry is planning increased capacity, more extensive use of reinforced concrete and other methods may be required. Because shortages are currently more serious for steel than for cement, this substitution has been noted on projects now under way."

With respect to the more general economic effect, it is important first to note that this program has an important new feature, namely, that the funds for financing it must come from specific excise taxes which are related to motor vehicles. These taxes are to be placed in a trust fund out of which federal aid will be financed, over the long term, on a strictly pay-as-you-go basis. In the first few years of the program, collections are expected to exceed expenditures, providing a reserve from which spending may exceed current collections during its later years. Most of the funds will come from taxes on gasoline, on tires and tubes, and on the purchase and licensing of trucks.

Because of this special financing arrangement, it is likely that in the first few years, when the program is getting under way, the tax take will exceed the outgo substantially. This will have a deflationary effect. As a matter of fact, it may be one of the forces which will reinforce the government's current anti-inflationary program.

Also, the passage of this legislation has essentially put a stop to further toll road building, which will have a restraining influence. Thereafter there is likely to be a period when not only the currently appropriated funds but also those accumulated in the trust funds will be spent rather rapidly. During this period the program will have an expansionary, perhaps even inflationary, effect.

Finally, as the program is carried forward, it is likely that its activity will be dampened down because it will be limited by its pay-as-you-go features. It is entirely possible that there will not be enough money altogether to permit the completion of this very elaborate program in the projected 13 years. Therefore, the program is likely to slow down substantially toward the end of this period.

There is one relatively unpredictable factor. No one is exactly sure whether the increase in the money available for matching state funds will, in fact, encourage more state monies to be forthcoming. Insofar as it achieves that result, there will be a further expansionary effect not only for the road building and associated industries, but for the economy as a whole.

In general the expanding road building program, if it goes as scheduled, looks like an almost certain guarantee of prosperity to the road building industries and a great help to the industries associated with road building. It may even provide insurance against a substantial economic downturn.

ALBERT L. LOVE JR., veteran Texas paving engineer, has been appointed district engineer for New Mexico by the Asphalt Institute. The new office, located at Santa Fe, opened early this month.

CHARLES A. MCKEOGH has been named to succeed WILLIAM H. RHODES, retiring district engineer for The Asphalt Institute at New Orleans, La. Mr. McKeogh will direct Institute activities in Louisiana and Mississippi.

Toe hole drilling with Kennametal Rock Bits

KENNAMETAL* Rock Bits

drill abrasive sandstone 12" to 14" per minute

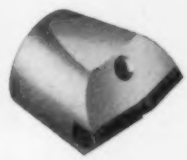
Using Kennametal PX600-3½ and PC600-3 Bits, this contractor gets 150 feet per grind drilling Pocono sandstone, and 8 to 10 regrinds per bit. At drilling speeds of 12" to 14" per minute, this means that drilling time is cut to a minimum, his investment in drill bits is low, and bit maintenance is down to rock bottom.

This is typical Kennametal Rock Bit performance in percussion drilling. To provide for varying conditions, Kennametal Rock Bits are available in three styles, all three with special Kennametal grades that stand up under heavy shock and abrasion.

Style PA, or Chisel Bits provide fastest penetration in uniform rock formation. Style PC, or Cross Bits operate without wedging in fissured or ravelly formations. And Style PX, or "X" Bits eliminate rifling and produce uniformly round holes. Bits are available in sizes up to 5" diameter.

Why not discuss your drilling problems with a Kennametal representative? He will help you select the right style for each of your operations. Or write KENNAMETAL INC., Mining Tool Division, Bedford, Pa. B-5008

*Trademark of a series of hard tungsten and tungsten-titanium carbides.



Style PA

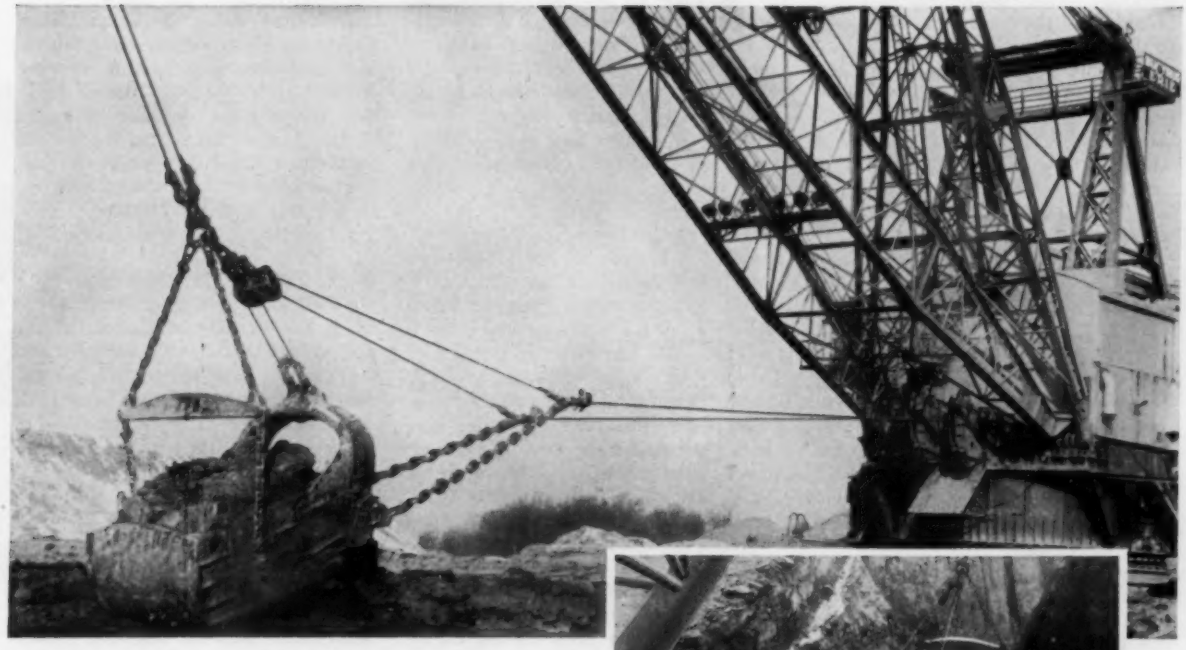
Style PC

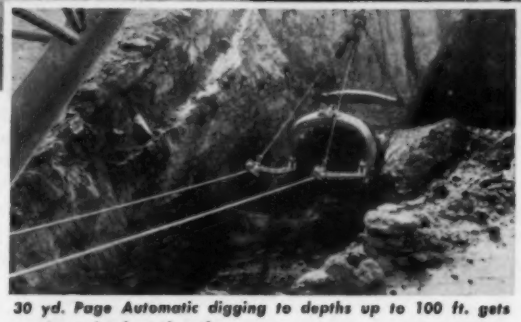
Style PX

INDUSTRY AND KENNAMETAL ...Partners in Progress

"Page is the *BEST DIGGING BUCKET* I've ever seen"

...ANGUS BAIN
FAIRVIEW COLLIERIES,
DANVILLE, ILLINOIS





30 yd. Page Automatic digging to depths up to 100 ft. gets maximum loads each cycle.

There's No Substitute for DIGGING ABILITY in a Dragline Bucket

Experienced dragline men like Angus Bain of Danville's big Fairview Collieries, know that the only way to judge a dragline bucket is by its *digging ability*. Digging ability means faster loading of maximum loads, more cycles per hour and greater production per shift – the real payoff of dragline equipment.

Page Automatic Buckets lead the field and are the choice of production-conscious buyers because they have the built-in automatic action that makes them start digging sooner, fill faster and carry out more yardage than any other bucket.

Page Automatic Buckets have often been imitated, but their most important feature – *digging ability* – has never been equalled. You can improve the productive capacity of any machine by putting it to work with a Page Automatic... the bucket that's built to dig better.

Want proof? We can arrange a demonstration of a Page Automatic on your own machine. You be the judge of its digging ability and performance. Write for details today. There's no obligation.

PAGE ENGINEERING COMPANY
CLEARING P.O. • CHICAGO 38, ILLINOIS

Page

Automatic Dragline Buckets
Walking Draglines

If it's a PAGE... *It* DIGS

B-3110.

Kalamazoo Gravel Producer Provides Industrial Service

WHEN several industrial firms and other companies in the Kalamazoo, Mich., area wish to avoid winter traffic tieups due to snow and ice conditions, in their parking areas and other large paved sections within plant or property boundaries, they turn to an enterprising local gravel producer.

In 1950, Miner Vander Salm Jr., owner of a sand and gravel operation near Kalamazoo, decided that some of his firm's road equipment which was not in great demand during the winter months could be put to use in a maintenance service for parking lots and driveways.

The merit of this idea was quickly recognized, and many local industry officials soon subscribed to the service. Just how popular the operation became is evident in the fact that the Vander Salm organization is now using six trucks (which will soon be equipped with two-way radio) two plows, a front-end loader, and a sander in the traffic maintenance work. Some of the areas being maintained by the service are 6 acres in extent.

Last winter one of the subscribing firms proposed to Mr. Vander Salm that its driveways and parking lots be sanded following the clearing of snow cover. In view of the fact that treated abrasives will provide quick traction, and will also melt any ice formation, a stockpile of sand was treated with calcium chloride, and this treated material was spread. While it was being applied, a further amount of the chemical was added.

The sand and calcium chloride are thoroughly mixed by a front-end loader at the ratio of about 50 lb. of the chemical to each cu. yd. of abrasive. During extremely cold periods, an additional quantity—approximately 10 lb. per cu. yd.—is added to the mix when it is loaded into the spreading trucks. This latter step reportedly helps "sweeten" the material and aids embedding in ice to provide quick traction.

This procedure has been widely accepted by Mr. Vander Salm's customers, and by the end of last winter he had spread about 300 tons of sand that had been treated with 50 tons of calcium chloride. With the recent opening of several new plants in the area, he expects that the service will increase even further.

The idea has proven profitable both to the Vander Salm firm and to its winter maintenance service subscribers. Full-year operation has been realized for the sand and gravel trucks and crews, and those firms who must have their property fully accessible in winter need not provide their own service equipment.

A new crushed rock plant for the Permanente Cement Company, Oakland, Calif., has been completed at Permanente, Calif. The plant has a production capacity of 400 t.p.h., and will produce about 500,000 tons of crusher run base per year.

CARL A. NULTY has been appointed vice-president for sales of the Ash Grove Lime & Portland Cement Company, Kansas City, Mo.

Major Cement Producers Announce Price Increases--Cite High Production Cost

Cement prices for most of the nation's major producers rose on January 1 at plants not included in the price boosts which went into effect last October. Officials stated that higher freight and labor costs were chiefly responsible for the increases. The new prices are from 10 to 25 cents higher per barrel.

Universal Atlas, a U. S. Steel Corporation subsidiary, announced increases at its eight plants, ranging from 15 to 25 cents per barrel. Lone Star upped prices similarly at seven mills. Others included in the list are Penn-Dixie, Alpha, Lehigh, General Portland, Marquette, Giant, and the Green Bag Cement Division of the Pittsburgh Coke & Chemical Co.

H. E. Foreman to Retire As A.G.C. Managing Director

H. E. Foreman, managing director of The Associated General Contractors of America, has announced his retirement, effective April 1, 1957. The executive committee of the association has adopted a resolution naming Mr. Foreman association advisor at the time of his retirement.

Mr. Foreman, widely known in the construction industry, has been managing director of the association since 1940, and a member of the staff since 1929. He has been spokesman for the general contracting industry before Congress and the Federal Government.

Capitalizing on his training as an engineer and a lawyer, Mr. Foreman analyzed many construction problems which came before the association. Previously he had been an engineer, and executive secretary and assistant to the director of the Ohio State Highway Department in Columbus.

An illustration of mixing operations for treated sand.

Right: One of the Vander Salm haulage trucks and its sand spreader.

The Euclid TC-12 gives you more work-ability than other Crawlers

The first really new tractor concept in years... with ALL the performance features you've wanted

Euclid's Model TC-12 Twin-Power Crawler establishes an entirely new standard of tractor performance. It's built to deliver unequalled drawbar horsepower, easy operation and a smooth, steady flow of power to meet any job requirement. It provides easy accessibility of all major components and all lubrication, check and adjustment points are located for maximum convenience. Unitized assemblies permit service or removal without a major tear-down of other parts.

Powered by two 194 h.p. engines at rated speed, 365 h.p. is delivered to the power train. Each of the tracks is driven independently through separate Torqmatic Drives giving the TC-12 faster, easier steering and greater drawbar pull at higher speed. There's no clutch—shifting from one of the three speed ranges to another is done under full power—top speed in forward or reverse is 8.3 mph.

Have your Euclid dealer give you all the facts on the TC-12—compare with your present big tractor equipment and you'll know why so many owners have proved that ***Euclids are your best investment.***

EUCLID DIVISION, GENERAL MOTORS CORPORATION, Cleveland 17, Ohio

Euclid Equipment

FOR MOVING EARTH, ROCK, COAL AND ORE

Aggregate for Resurfacing Of Desert Highway Section Processed at Harms Plant

U.S. Highway No. 466 runs smack through the lonely reaches of the Mojave Desert. But, connecting as it does the sprawling metropolis of Los Angeles with glittering Las Vegas, Nev., the highway itself is far from lonely, it carries extremely heavy traffic around the year. And heavy traffic spells constant maintenance, resurfacing, rebuilding.

When a contractor takes a job of resurfacing this artery of traffic, it is a foregone conclusion that he will have to produce his own aggregates, and prepare, deliver, and apply the asphaltic mixtures.

The accompanying pictures show a typical setup of one of these contractors, Harms Bros. of Sacramento, along Highway 466. Suitable aggregates for black-top use are excavated and given primary processing at a pit opened up by the contractor near the base of operations, then trucked to the hot-mix plant near the desert highway.

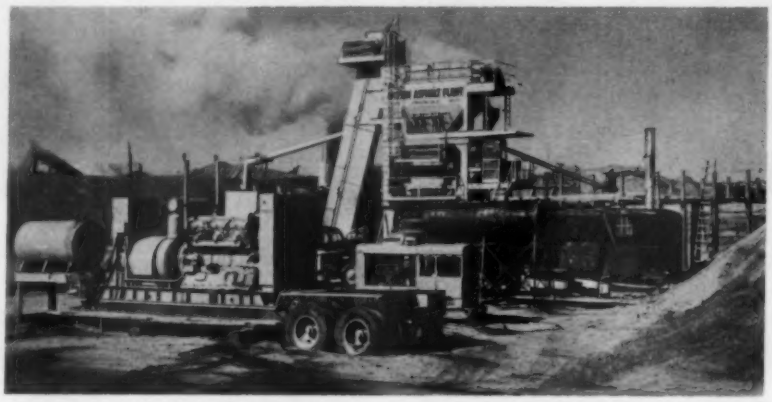
Here, a Caterpillar D8 tractor mounting an 8S bulldozer shoves the material into the hopper feeding a Cedarapids portable crushing-and-screening plant. The desired blended aggregate is stockpiled via belt conveyor over a recovery tunnel. From the tunnel a conveyor feeds the blend directly into an oil-fired rotary drier preceding the Madsen hot-mix asphalt plant.

Although there are apparently no regulations against air-pollution in this remote, sparsely-populated region, Harms Bros., in the interest of efficiency and a good housekeeping policy, have equipped the plant with a Madsen 3-compartment dust-collector having an integral suction fan. All equipment is fully portable and can be taken down quickly and transported to a new job-site in a matter of hours.

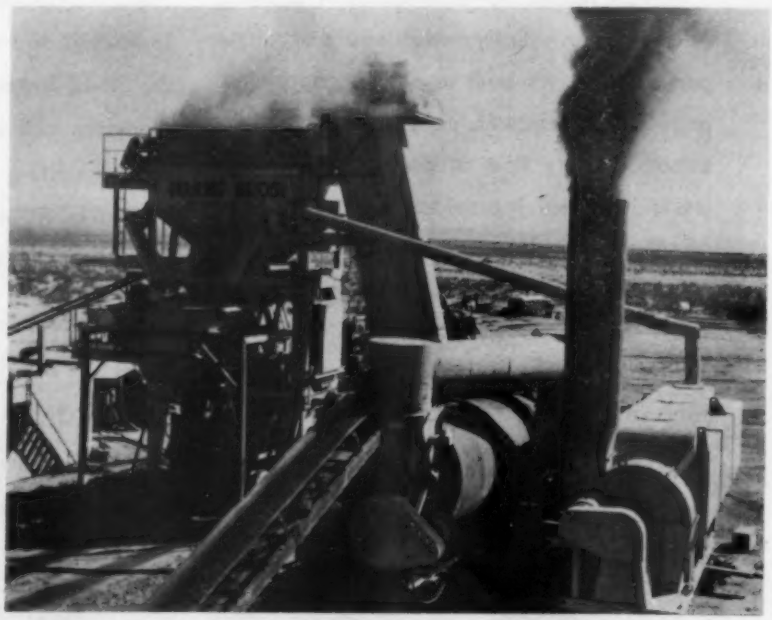
Power for the crusher is supplied directly by a Caterpillar D13000 diesel engine, while a Caterpillar D397 diesel-generator set furnishes electricity for the motor-driven units comprising the remainder of the setup.

The Permanente Cement Company, Oakland, Calif., reports consolidated net earnings of $4,879,000 after taxes for the nine-month period ended October 31, 1956, compared with $5,346,000 for the same period last year. Net sales for the nine months were $33,766,000, compared with $35,764,000 reported for the first nine months of 1955.

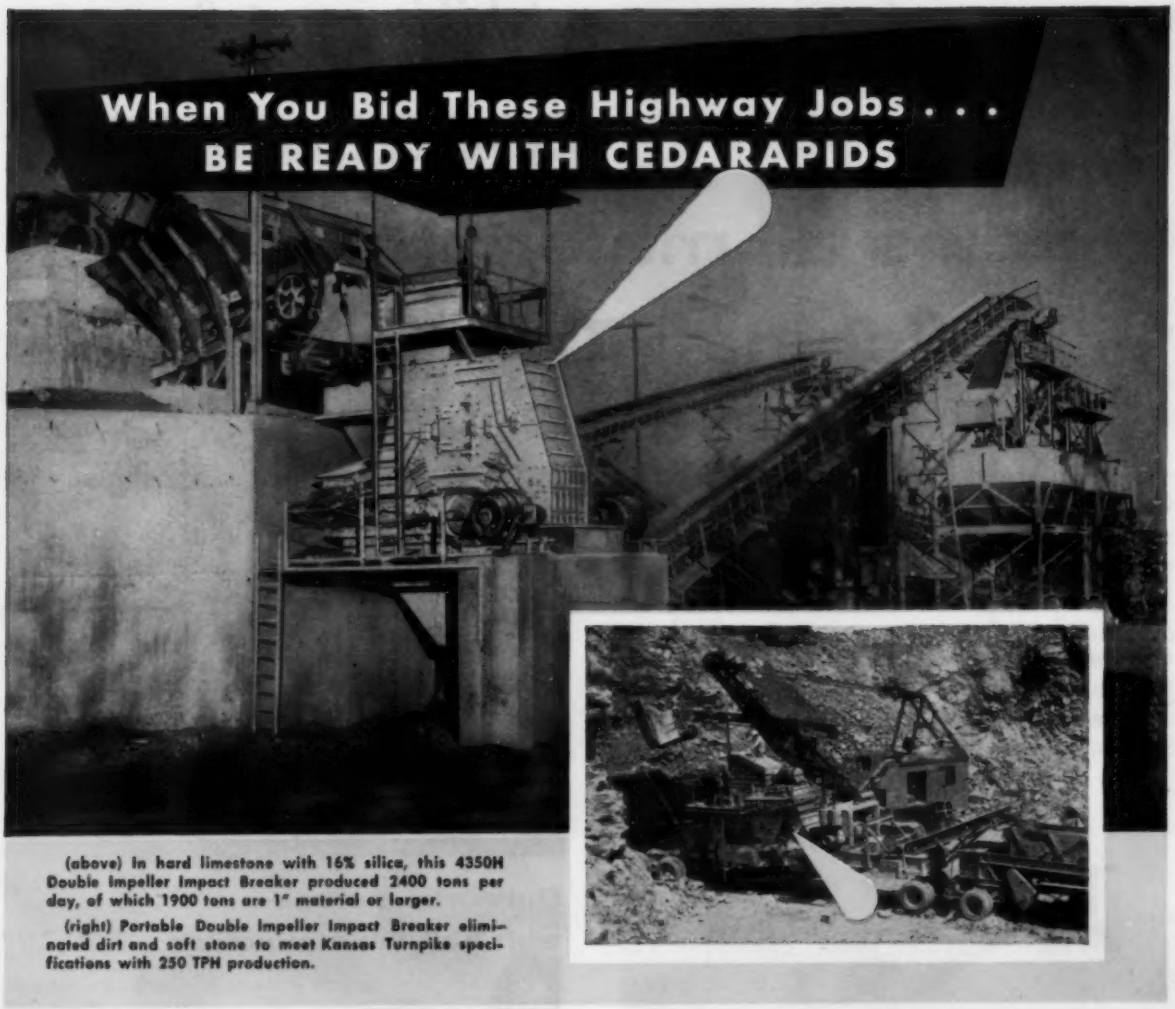
This view of the Harms Bros. Mojave Desert operation shows a tractor-bulldozer feeding aggregate to the portable crushing-and-screening plant. Specification material is stockpiled at the left. The conveyor at the right carries off reject sizes.



Beyond the aggregate stockpiles is the hot-mix asphalt plant. (The crushing-and-screening plant may be seen in the background.) In the foreground is the diesel-electric power plant.



The conveyor is feeding blended aggregate to the rotary drier before it is elevated to the vibrating screen at the top of the asphalt plant. At the right is the portable dust-collector (with exhaust stack). A duct leads from the plant to the collector.



(above) In hard limestone with 16% silica, this 4350H Double Impeller Impact Breaker produced 2400 tons per day, of which 1900 tons are 1" material or larger.

(right) Portable Double Impeller Impact Breaker eliminated dirt and soft stone to meet Kansas Turnpike specifications with 250 TPH production.

You get more specification aggregate from mixed, dirty and wet material with

CEDARAPIDS DOUBLE IMPELLER IMPACT BREAKERS

With specifications getting tougher, and aggregate material often of questionable quality, more and more producers are turning to Cedarapids Double Impeller Impact Breakers. It's one of the most successful money-makers in difficult conditions for either portable or stationary applications. These efficient units are easily adjusted to produce a minimum of fines and crush, selectively, mixed hard and soft material to desired sizes. They work efficiently in wet and dirty material because it won't pack in the breaking chamber.

High ratio of reduction . . . *up to 40 or 50 to 1* . . . produces big tonnages of specification aggregate in one pass. Maintenance is low since the entire area of the breaking chamber is used for reduction by rock striking rock in suspension.

While many of these units are working in limestones, they are also successfully used for gravel, basalt, dolomite, sandstone, iron ore, lead ore, zinc ore and uranium ore. For the complete story, see your Cedarapids Dealer today.

OTHER CEDARAPIDS CRUSHING EQUIPMENT

The complete line of Cedarapids crushing equipment will handle practically any aggregate production problem in portable or stationary plants. Ask about Single or Twin Jaw Crushers, Roll Crushers, and Hammermills, available in a wide range of sizes. Also Horizontal Vibrating Screens, Conveyors, Vibrating Grizzlies, etc.

Cedarapids — Built by IOWA

IOWA MANUFACTURING COMPANY

Cedar Rapids, Iowa, U. S. A.

Over-specialized equipment hiking costs?

READ HOW ANACONDA handles all material fast with Michigan Tractor Shovels

Most ore mined by the world-famed Anaconda Company at Butte, Montana, is smelted by the Anaconda Reduction Works in nearby Anaconda. From a pioneer beginning, nearly 75 years ago, this smelter has grown to be one of the largest in the world. This growth reflects Anaconda's unceasing search for a *better* way at *lower* cost in *less* time. Typical was their recent shift from slow single-purpose handling equipment to two highly mobile Michigan Tractor Shovels.

Transports material weighing 5,400 lbs per cu yd

These rugged versatile 2¾ yard Model 175A's "run" at 27 mph speeds all around the big plant to handle a wide variety of loading tasks. Hard-to-handle chunks of ferro-manganese—*weighing 200 pounds per cubic foot* —are the heaviest tractor-shovel work on hand.

One of the Michigans usually does the entire job. In a few hours it moves weekly requirements of 100 tons 750 feet from plant stockpile to massive timber storage platform. Planetary wheel drive axles, torque converter take up shocks of this rugged work.

Outworks a crane— with half the manpower

Planetary axles and the efficient all-Clark power train help out on another tough job—truck-loading "purification cake"—a sludge from the smelting process, rich in metals such as gold and silver. With a crane, it used to take 12 hours (and a 2-man crew) to load 240 tons; one Michigan now does the *same* job in *six* hours—with only one man! Operators like the fast reverse and power-shifting of the Michigan . . . management is pleased with the time and labor saved.

Goes in to load where trucks don't dare

Millions of cubic feet of calcine—iron oxide powder —are stockpiled here; it's used to make sponge iron for

treating copper ore in the flotation process. But on the ground it's a mountain of soft, treacherous dust. Trucks sink deep into the soft footing, so the big-tire four-wheel-drive Michigans go in alone, rush heaping buckets back out. A single Michigan keeps three five-yard trucks busy on a half-mile haul, heaps up to 80 truck loads in a day!

In 8 hours, digs 80 foot trench through rocky soil

Despite busy schedules moving various stockpiled materials, the Michigans find time to do lots of odd jobs, too. Here, a Michigan digs its way through sun-baked earth and rock, excavating the trench for a concrete tunnel to hold electrical conduit. The trench is eight feet deep, ten feet wide, 80 feet long. How long did it take? *Only one 8-hour day*—and this includes piling waste material 100 feet away! The secret is a *full bucket* loaded and delivered every pass, a "trademark" of all Michigans. Unexcelled breakout force, low-level-tipback and low-level-carry also help deliver those bigger loads.

Spots and loads 12 rail cars in 5 hours

Anaconda's two Michigan 175A's spend roughly 30% of their time loading stockpiled crushed limestone. They move empty rail cars into position at the quarry, then fill them up. Loads run about 60 tons per car; each Michigan can fill a dozen cars in only five hours! Off-time jobs include stripping dirt; cleaning haul roads and around conveyors; helping trucks up steep grades; and removing tons of ash from the flue of the smelter stack.

Which of these will fill the bill for you?

Model 12B:
6, 10, 16 (std), 20 or 27 cubic *foot* buckets
Models 75A, 75B, 75R:
¾, 1¼ (std), or 1½ *yard* buckets
Model 125A:
2 (std), or 2¾ *yard* buckets
Model 175A:
1⅜, 2, 2¾ (std), 3 or 5 *yard* buckets
Model 275A:
4 *yard* (std) bucket
Model 375A:
6 *yard* (std) bucket

For help in determining which of these eight models and how many of their 37 different buckets and attachments, will do an Anaconda-class job for you, let one of our Job Study Engineers study your layout. A card or a call will bring him. No obligation, of course—but we believe you'll find his suggestions worth further study!

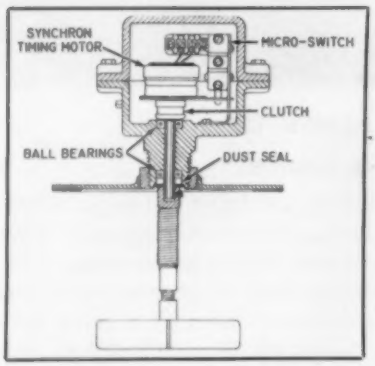
CLARK® EQUIPMENT

Michigan is a registered trade-mark of

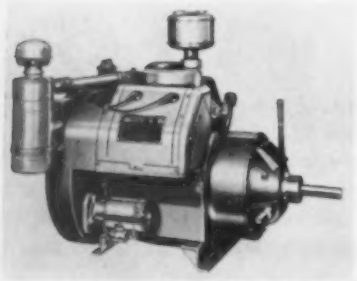
CLARK EQUIPMENT COMPANY
Construction Machinery Division
2479 Pipestone Road
Benton Harbor 15, Michigan

New Machinery
and Equipment

For Further Information Use Card on Pages 99-100



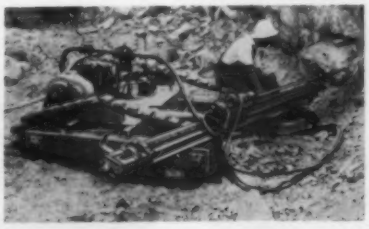
• A new explosion-proof Roto-Bin-Dicator for use in hazardous atmospheres has been developed by Bin-Dicator Company. Designed to indicate or control the level of any bulk material that will flow, it is particularly suited for application on bins under pressure or vacuum. A low torque motor, located in an explosion-proof housing, rotates the paddle at slow speed. Material building up to the Roto-Bin-Dicator stops the rotating paddle and stalls the motor. As the motor stalls, the torque actuates a Micro switch which controls a signal on the conveyor or feeder. **(51)**



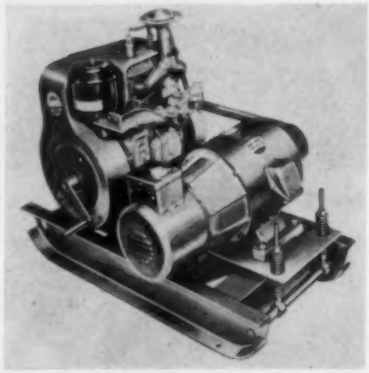
• Two new 4-cylinder "Vee" engines, Models VR4 and VR4D, have been introduced by the Wisconsin Motor Corporation. Model VR4D (above) extends the manufacturer's line to a 3- to 60-hp. range. This new engine is capable of producing 60-hp. and has extremely high torque characteristics. **(52)**

• This heavy-duty lime or phosphate spreader, designed by the Adams & Doyle Equipment Manufacturing Company, gives an even spread in any amount from 100 lb. to 4 tons per acre. The spreader features precision-built gear cases of hardened steel with individually cut and spiral matched gears for extra strength, smoother operation, and longer life. Adams & Doyle spreaders with a 21-in. bottom are available in sizes from 7 ft. for ¾-ton pick-up to 12 ft. for tandem trucks. **(53)**

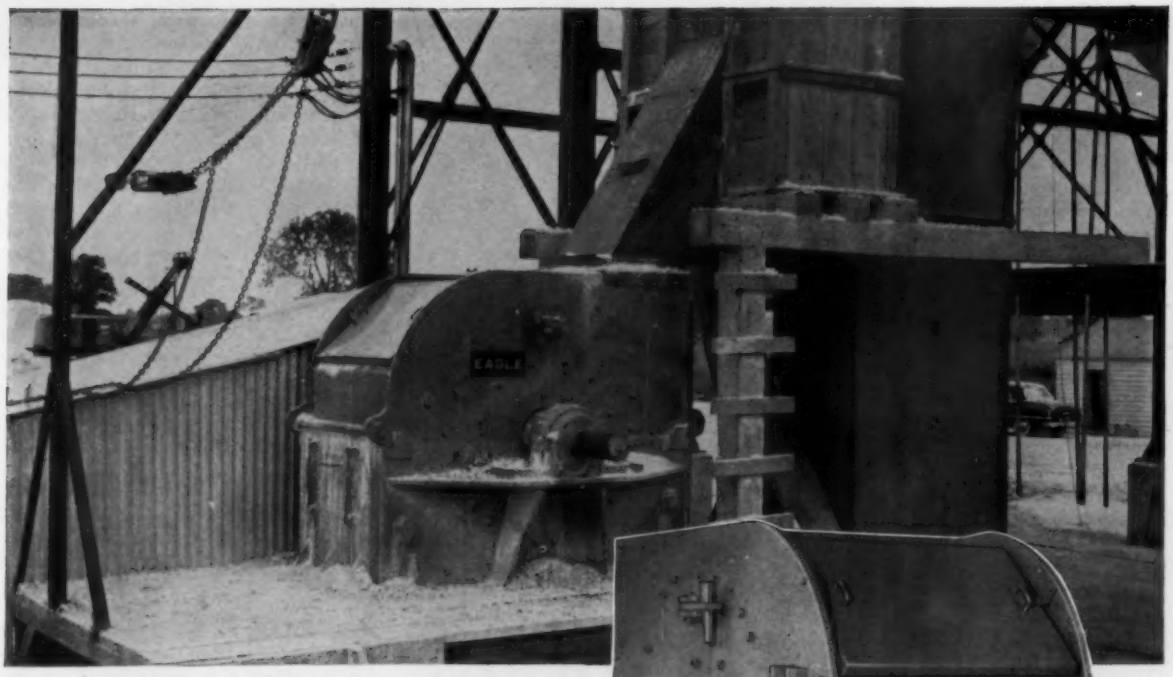
• Fisher Manufacturing Incorporated has introduced a new line of hopper bottom dump trailers. Features of these trailers include increased payload and an integral framing system which eliminates cross members within the load carry hopper. An obstruction-free interior and a large discharge gate facilitate the dumping of lumpy or sticky material. **(54)**



• Designed to reduce drilling time, a new rock drilling crawler, called the MM-2 "Drillcat," has been introduced by the Thor Power Tool Company. The new rig is entirely self-propelled with drill, mast, and air power mounted for one-man operation. It consists of Thor's 105M drifter rock drill and the GW-2 wagon drill mast mounted on the crawlers, and is equipped with twin reversible 7½-hp. air motors. **(55)**



• Power for conveyor motors and speed reducers on portable screening and crushing equipment can be supplied by this 6,500-watt belt driven generator manufactured by the Pioneer Gen-E-Motor Corporation. Features include sealed ball bearings and life long lubrication. **(56)**



Amazing results have been obtained on this Eagle 36-42 installed in Wyandot-Dolomite Corporation's quarry, Carey, Ohio.

EAGLE HAMMERMILLS

Pay off in Results...

This newest hammermill-pulverizer is designed to do that larger, heavier job. Makes quick work of limestone or any stone up to 3", at the rate of 100 to 250 tons per hour.

The consistently high quality and cubical shape of EAGLE processed limestone is the talk of the "quarry-town". In many cases it eliminates the need for a primary crusher.

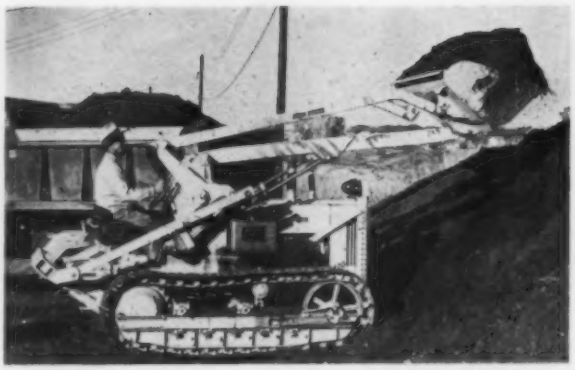
SKF spherical, roller type, self-aligning bearings are typical of the quality throughout. Adjustments easily made on grate bars and breaker plates while machine is in operation.

Send for complete specifications, Folder 1150.

EAGLE

JAW CRUSHERS • IMPACT BREAKERS
PULVERIZERS • CONVEYORS • LOADERS

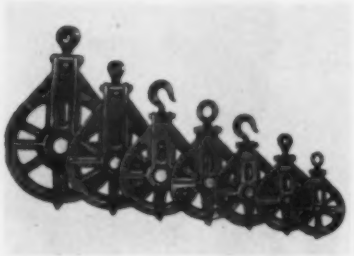
CRUSHER CO., *Inc.* GALION OHIO·U·S·A



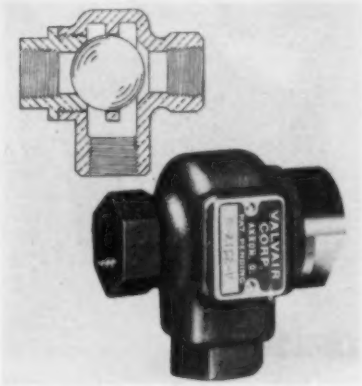
• John Deere has announced a new crawler-loader with a ⅝-cu. yd. heaped struck or ⅞-cu. yd. heaped bucket capacity. Mounted directly on the square crossbars of the crawler prime mover, the heavy formed-steel loader frame makes the crawler-loader a unit and places the load squarely on both tracks. Yoke type construction, with replaceable hardened steel or bronze bushings, is used at all loader pivot points of great stress. The bucket has a reversible, hardened steel cutting edge and replaceable mallable teeth. The loader lifts 2,700 lb. to dumping heights up to 10 ft. 6 in. **(57)**

• Weatherproof steel bins, useful in the shipping and storing of cement, lime, phosphates, silica flour, and other comparable materials, have been developed by the Delta Tank Manufacturing Company, Inc. Called "Deltainers," the bins can be moved easily by pallet trucks, fork lifts, or overhead cranes. When shipped by truck or on specially designed freight cars, the bins are considered part of the carrying vehicle and are qualified for transportation without freight charges. Three sizes of "Deltainers"—36 cu. ft., 65 cu. ft., and 88 cu. ft.—are avaiable. All sizes have a capacity of 5,000 lb. **(58)**

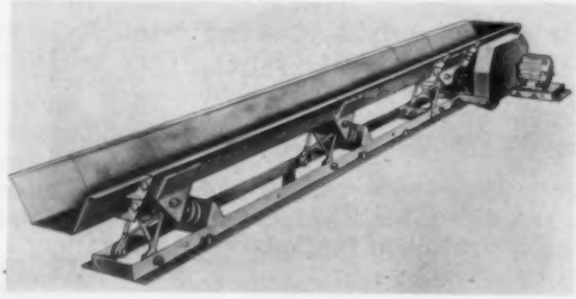
• To cut maintenance costs on rolls and return idlers on belt conveyors, Bearings, Inc., has developed a new removable ball bearing stud asembly. The conveyor roller shaft turns in ball bearings which are mounted in the removable studs. Damaged or worn out studs are replaced with a new stud and bearing assembly and the roller is slipped into the shaft. Sizes of rollers available, with studs, includes diameters from 2⅜ in. to 4 in. All sizes are supplied in lengths from 12 in. to over 36 in. **(59)**



• Durolite sheaves, manufactured by Sauerman Bros., Inc., are lightweight, yet provide high structural strength and durability for handling heavy loads at high speeds. They are available in sizes from 6 in. to 18 in. (alloy steel) and 20 in. to 24 in. (cast steel). Durolite blocks feature end thrust bearings to prevent side frame wear and a cast head on the side frames to prevent fouling of the wire rope. They are available in sizes from 6 in. to 18 in. with bronze bearings and from 8 in. to 42 in. in roller bearings. **(60)**

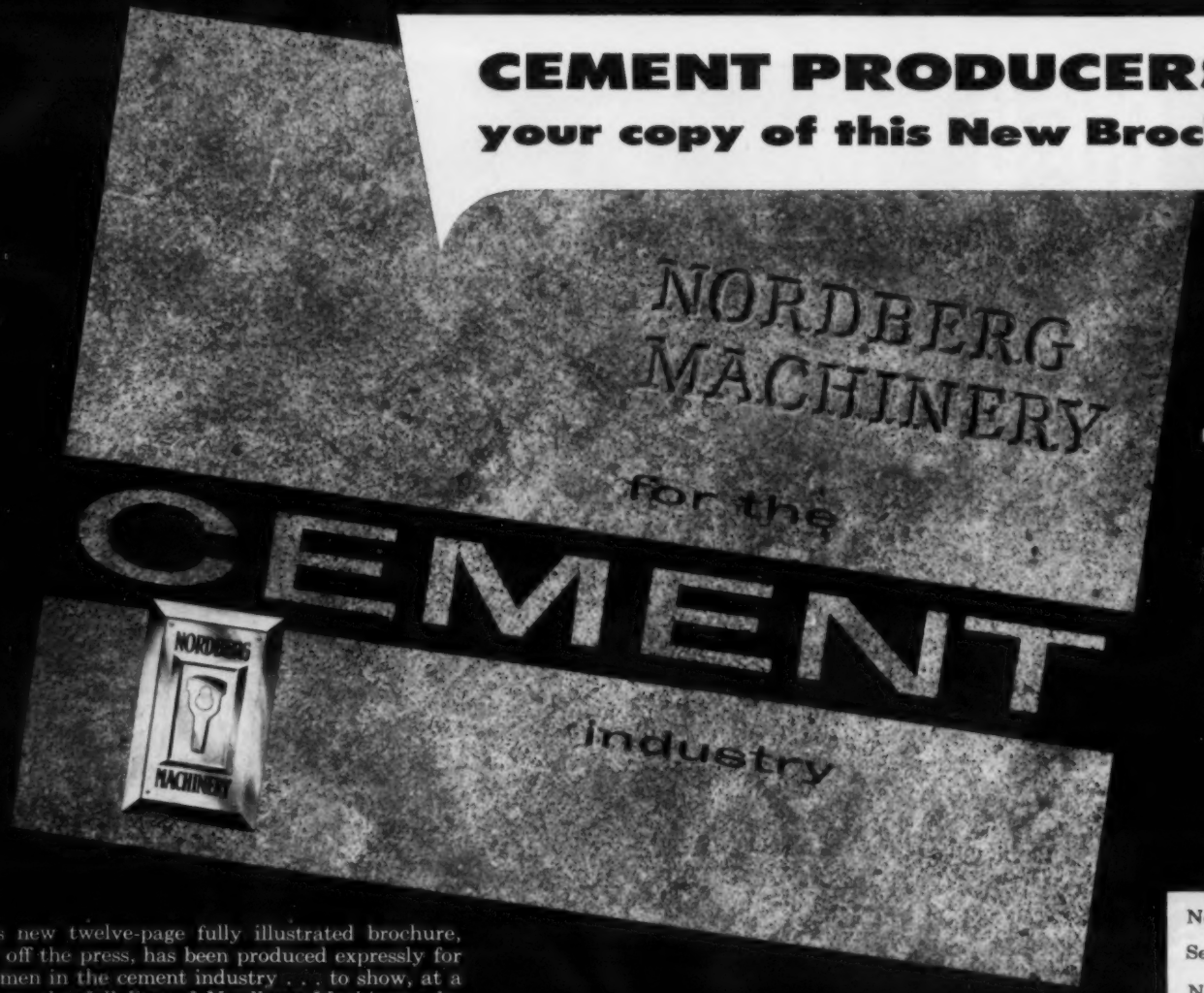


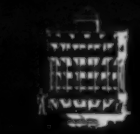
• A new directional valve which affords instant switch-over from automatic to manual control of diaphragm-operated valves, cylinders, and similar devices, has been announced by the Valvair Corporation. The valve, installed as a tee in the inlet lines, permits manual take-over from automatic control, or control from two different sources, whenever desired. Simple in design, the new valve consists of a captive Hycar ball which shuttles between two seats in the Navy M bronze valve body. When pressure is applied to one port, the ball shifts to and seals the opposite port. **(61)**



• Coilmount, the newest addition to Link-Belt's line of oscillating conveyors for bulk materials handling, is designed for intermediate capacities. One-piece all-metal construction reduces contamination; no return run eliminates carry-over; and smooth oscillation provides self-cleaning, careful handling, and levels out surge loads. Motion is imparted to material carried in trough by means of a constant-stroke eccentric drive that produces an upward and forward oscillating movement resulting in a gentle, continuous forwarding of materials. Coilmount is available in fully assembled sections of 5 to 10 ft. lengths, in trough widths of 10 and 20 in., in 10-gauge or 3/16-in. trough thickness. Coilmount sections can be assembled in lengths up to 100 ft. **(62)**

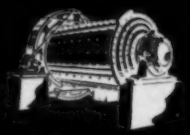
CEMENT PRODUCERS . . . send for your copy of this New Brochure TODAY!



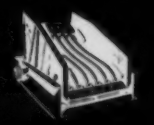


SYMONS® PRIMARY GYRATORY CRUSHERS

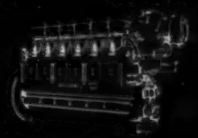
SYMONS CONE CRUSHERS



NORDBERG GRINDING MILLS



SYMONS VIBRATING GRIZZLIES and SCREENS



NORDBERG ENGINES . . . 10 to over 12,000 H.P.

This new twelve-page fully illustrated brochure, just off the press, has been produced expressly for the men in the cement industry . . . to show, at a glance, the full line of Nordberg Machinery designed and built for crushing, screening, grinding, pyro-processing and power generation in cement plants.

Write for your copy today, and learn some of the reasons why Nordberg Machinery has become the "standard for comparison" by so many of the world's leading cement producers.

NORDBERG MFG. CO., Milwaukee, Wis.

NORDBERG

MACHINERY FOR PROCESSING ORES and INDUSTRIAL MINERALS

NEW YORK • SAN FRANCISCO • ST. LOUIS • DULUTH • WASHINGTON
TORONTO • MEXICO, D. F. • LONDON • GENEVA • JOHANNESBURG

MAIL THIS COUPON FOR YOUR COPY

Nordberg Mfg. Co., Milwaukee, Wisconsin. PO

Send Cement Brochure to:

Name .....

Company .....

Address .....

City ..... Zone ... State .....

© 1957, Nordberg Mfg. Co. Q257

•Named the Oliver 990, this 6.7-cu. yd. capacity scraper is the newest model being produced by the Oliver Corporation. The Oliver 990, compact in size, measures 8 ft. 6 in. width. Its all-hydraulic design provides smooth, positive steering and scraper operation. Offset cutting with curved bowl arrangement results in rapid loading. Hydraulic pressure ejection provides a fast unloading cycle. **(63)**

What's down there?

Empire
TEST DRILLS
come up with the
RIGHT ANSWERS

EMPIRE
Hydraulic
Testing
Drill

This test-drilling equipment is a "must" for pit and quarry operators and general contractors.
The EMPIRE Junior Drill used manually with solid rods or the EMPIRE Hydraulic Jetting Drill, using hollow rods, is the standard method of exploring sand and gravel deposits for composition and presence of clay, and accurately determines overburden depth and formation.
Easily transported in any kind of terrain. Assembled and ready for work in minimum time with ordinary labor.

Write TODAY for complete details

NEW YORK ENGINEERING CO. 75 WEST STREET NEW YORK 6, N. Y.

• Push-button car-type electric elevators are manufactured by The J. B. Ehrsam & Sons Manufacturing Company to conform fully to the American Standard Safety Codes and all local and state codes. Known as the Ehrsam Style S, these elevators are available in three sizes: the one-passenger Style 100-S; the two-passenger 200-S; and the four-passenger 300-S. Pictured above is an installation of the Style 200-S at the Monarch Cement Company plant at Humboldt, Kans. Standard speed of the elevators is 90 ft. per minute. For special applications speeds of from 50 to 120 ft. per minute are available. Its sturdy construction makes the Ehrsam electric elevator suitable for cargo hauling as well as passenger duty. **(64)**

• Model S-1510, the newest mobile crane offered by Coles Cranes, Inc., is designed for maneuverability, flexibility, safety, and economy. It is capable of lifting 15 tons at 10 ft. radius with a 30-ft. boom, and is available with gasoline or diesel-electric power to reduce maintenance and operational costs. **(65)**

Rugged Work and a hose to match!

U. S. 4810 Air Hose

Jagged rocks, grinding gravel, severe cold and sun checking, punishing impacts from heavy equipment—all these were faced *and licked* by the "U. S." engineers who designed U. S. 4810. Reason enough why it's become one of the most popular of all hose for mines, quarries, shipyards and general construction work.

Combining super adhesion, great strength, high resistance to cuts and abrasion, and extreme *flexibility*, U. S. 4810 is recommended for all pneumatic tools and air drills, for use *wherever* high working pressures, abraision, and general abuse pose problems.

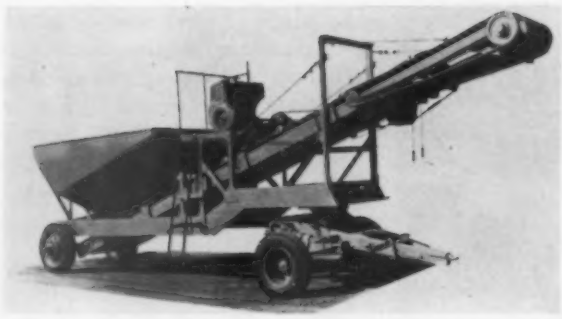
Whatever your hose requirements, you'll find it pays to turn to "U. S." There's a job-engineered U. S. Hose for practically every purpose—an expert staff of "U. S." Engineers to assist you with your hose selection.

Service-packed, economical U. S. 4810 Air Hose is available from any of our 27 District Sales Offices, or by writing to us at Rockefeller Center, New York 20, N. Y.

- tough, flexible tube of neoprene provides top oil resistance
- high-tenacity, tire-type cable rayon braids give tremendous carcass strength
- thick cover of cut-resistant natural rubber wards off damage from rocks, tools, and equipment

Mechanical Goods Division

United States Rubber



• Model 1136, a new portable surge bin manufactured by the Diamond Iron Works, receives aggregate produced by a portable crushing and screening plant and loads it into trucks at the rate of 7 cu. yd. per minute, allowing continuous operation of the plant. A self-contained, heavy-duty unit, it is clutch-controlled from the platform or ground. The surge bin has an 11-cu. yd. hopper, a 36-in. wide conveyor V-belt, air brakes on the two rear wheels, and is powered by a Wisconsin VG4D air-cooled engine with fluid coupling. **(66)**

THE KEY TO SUCCESSFUL SCREENING

ALL NEW IN DESIGN

WRITE FOR NEW BROCHURE

HANCO ELECTRIC SCREEN HEATERS

eliminate "blinding" and "clogging" of wire screens, thus making beating and brushing practices obsolete. Designed for heavy-duty service, HANCO Heaters with Quick Change Attachments are quickly installed and easily adapted to new or existing screen installations with such features as large capacity secondary terminal, a 16 step temperature changer, dust enclosure compact, exclusive overload protector.

EXCLUSIVE SCREEN TENSIONING DEVICE
(Replaces Existing Parts)

Fiberglass plate — insulates conductor from frame — eliminates draw bolt insulators.

Wedge-shaped conductor bars offers positive contact with cloth.

Representatives throughout the World.

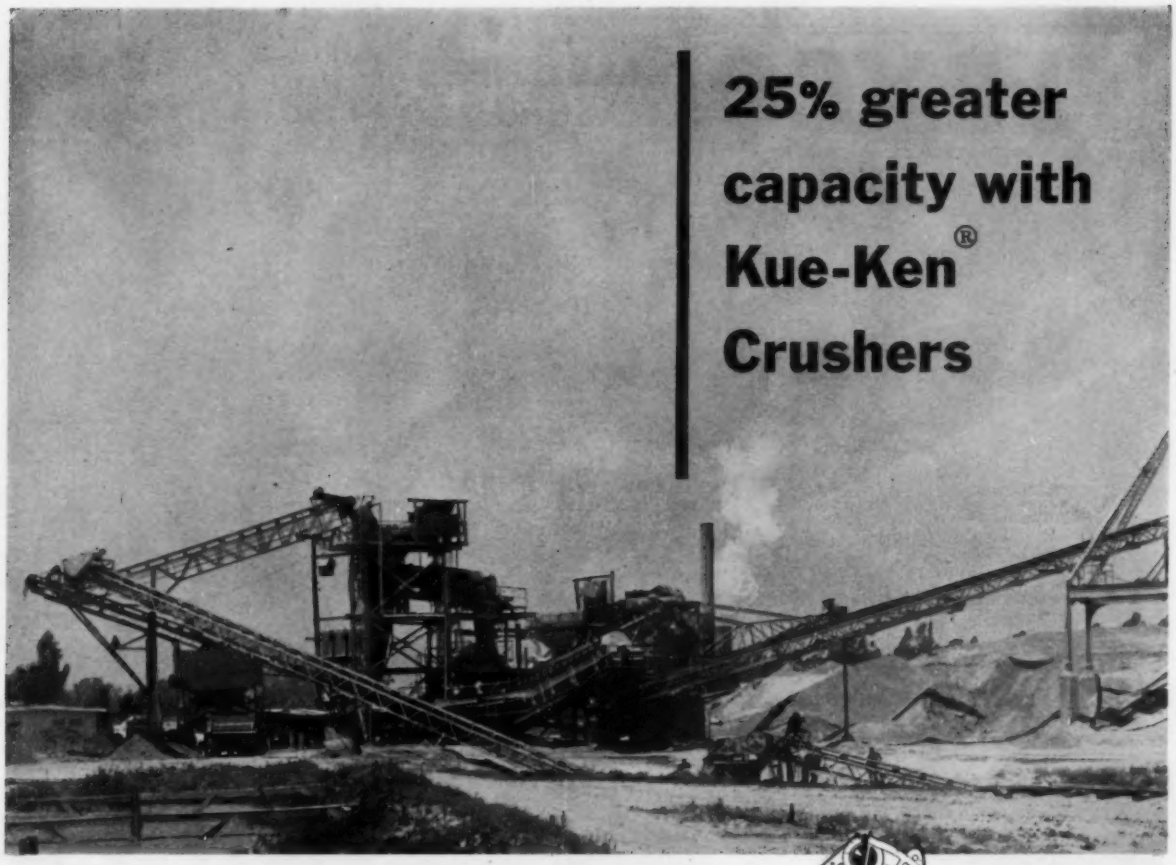
Hanco

F. R. HANNON & SONS

1605 Waynesburg Rd. S.E., Canton 7, Ohio
ENGINEERS — Since 1926 — MANUFACTURERS

• Designed for one-man operation, Omaha Standard's "High Pile" end-dump trailer is 26½ ft. long on a 29-ft. frame and is rated for a 14- to 16-cu. yd. capacity. No cables or winches are needed. The angle of dump may be varied from 26 to 60 degrees. Twin telescopic 7 in. cylinders work in unison to prevent tilting of the body during dumping. Neither the tractor nor the tandem trailer axle is required to move during dumping, giving maximum stability. Outrigger type of construction with heavy channel supporting members and runsills outside the frame give the new trailer-conveyor greater stability on the highway. **(67)**

• The new International Drott 3 cu. yd. TD-18 "Four-in-One" Skid-Shovel, operated hydraulically, can be converted instantly from skid-shovel to bullclam, to clamshell, to bulldozer merely by the flick of a small lever located within easy reach of the operator. The 134 hp. unit, when operated as a skid-shovel, gives a pry-over-shoe break-out action of 27,000 lb., plus a 46 deg. ground-level bucket roll-back. It will dump with a clearance of 12 ft. 9 in. The rig incorporates the Drott Hydro-Spring feature which absorbs rough shock loads and cuts down on hydraulic line failures. This arrangement is a hydraulic cylinder enclosed in a coil spring and connected to the part of the hydraulic system supplying oil to the lifting side of the main lift cylinders. **(68)**

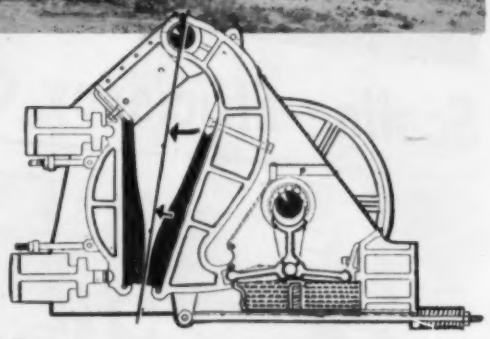


25% greater capacity with Kue-Ken® Crushers

The increased capacity from Kue-Ken jaw crushers permitted this southern California plant to use a smaller size than would have been required with other crushers. Kue-Ken has the greatest capacity for its size, yet consumes less power. The mechanism operates in a sealed, dust-tight crankcase lubricated by filtered oil. Wear is negligible so that shutdowns common to conventional crushers are practically eliminated. The flywheel is automatically released on overload avoiding any breakage. It can be quickly reset. This plant also includes Kue-Ken gyratory crushers for the secondary crushing.

WRITE FOR CATALOG

STRAUB MFG. CO., INC. • 8386 BALDWIN ST. • OAKLAND, CALIF.



Jaw plates last at least 5 times longer . . . only Kue-Ken crushes without rubbing

See how the hinge pin is located on the center line of the crushing zone. The jaw moves in an almost straight line. Rock is instantly gripped and crushed without rubbing.

KUE-KEN® CRUSHERS

"CRUSHING WITHOUT RUBBING"

Jaw Crushers Gyratory Crushers Overhead Eccentric Crushers Revolving Screens
Classifiers Feeders Rib Cone Ball Mills Concentrating Tables Vibrating Screens

DEALERS:

SEATTLE, WASH. .....Washington Machinery Co.
SALT LAKE CITY, UTAH .....Lund Machinery Co.
SAN ANTONIO, TEX. .....Closner Equipment Co.
PORTLAND, ORE. .....Contractors Equipment Co.
LOS ANGELES, CALIF. .....Garlinghouse, Fremon Co.
PHOENIX, ARIZ. .....Stapley's
DENVER, COLO. .....Union Supply Co.
CASPER, WYOMING .....Moss Equipment & Supply Co.
VANCOUVER, B. C. .....Universal Equipment Co.

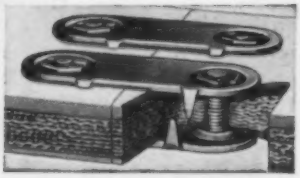
Pennsylvania Crusher Division, Exclusive Licensed Eastern Manufacturer and Distributor, 323 S. Matlack St., West Chester, Penn.
Armstrong Whitworth (Metal Industries) Ltd., Authorized Licensed Manufacturer and Distributor. Close Works, Gateshead-upon-Tyne 8, England

FLEXCO®

BELT FASTENERS and RIP PLATES

FOR HEAVY CONVEYOR AND ELEVATOR BELTS OF ANY WIDTH

★ FLEXCO Fasteners make tight butt joints of great strength and durability.
★ Trough naturally, operate smoothly through take-up pulleys.
★ Distribute pull or tension uniformly.
★ Made of Steel, Monel, Stainless, Everdur. Also Promal top plates.
★ FLEXCO Rip Plates are for bridging soft spots and FLEXCO Fasteners for patching or joining clean straight rips.

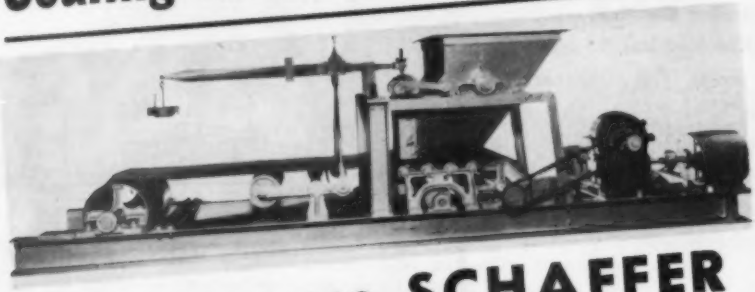


Compression Grip distributes strain over whole plate area

Order From Your Supply House. Ask for Bulletin F-112

FLEXIBLE STEEL LACING CO., 4623 Lexington St., Chicago 44, Ill.

Scaling Efficiency CLIMBS



when you use SCHAFFER POIDOMETERS

Production-and-profit records move *up* after SCHAFFER Poidometers move *in!* These high-speed, high-precision, automatic units handle *all* the scaling work of experienced bulk material processors. That includes weighing, blending, feeding, mixing, recording and proportioning.

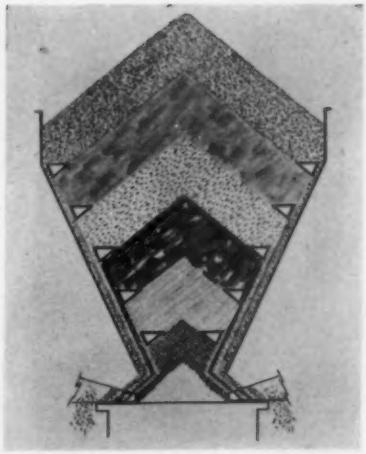
Long-service, economical Poidometers maintain product uniformity, and assure top tonnages.

Available with total weight recorders, and remote controls for showing and changing feed rate.

OVER 1400 now serving Industry

Write for Catalog No. 5

SCHAFFER POIDOMETER CO.
2828 Smallman St., Pittsburgh 22, Pa.



• A new method of mixing and blending bulk materials to produce a uniformly homogeneous mixture in a continuous flow has been developed by Hewitt-Robins, Inc. The system is especially useful in blending various grades of stone for cement production. Blending is done in a metal or concrete bin containing a series of overlapping baffles which deflect the out-flow to the sides of the container. After the bin has been filled, the blending process is carried on continuously by regulating the rate of input to match the rate of draw-off so that material flows through the bin at a steady rate. The bin can be built in any size, depending on the volume of material to be blended. **(69)**

• The Tornado impact crusher is recommended for low-cost, rapid reduction of stone, gravel, trap rock, lime, shale, gypsum, slag, etc., by the Adams Engineering Company, the manufacturer, and the Werco Steel Company, national distributor. The Tornado is available in three models: 4½ ft. single-stage unit; 3 ft. single-stage unit; and 3 ft. two-stage unit. A completely enclosed unit, the crusher is lubricated for life and features impeller shoes and breaker plates which simply hook on for instant replacement. **(70)**

Only the best for Fletcher

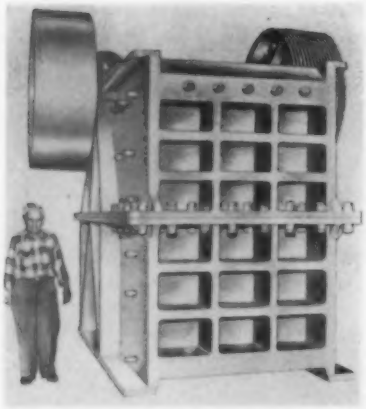
All over the U. S. A. the H. E. Fletcher Co., of West Chelmsford, Mass., is well known for their quality granite, used for highway curbing, bridges, office buildings, home landscaping and facing, dams, tunnels and many other phases of construction.

Here, at New England's largest and most modern quarry, CITIES SERVICE PRODUCTS have been extensively used for over 15 years. As pictured above, diesel powered equipment operating in severe service uses CITIES SERVICE C-200 and C-300 DIESEL MOTOR OILS, CITIES SERVICE DIESEL FUEL, and is kept well lubricated with CITIES SERVICE PACEMAKER OILS.

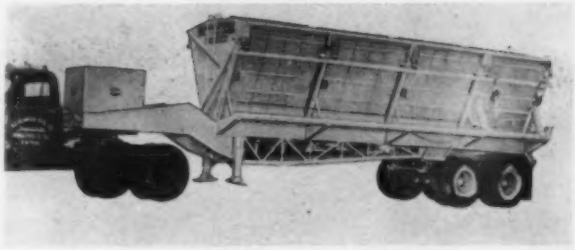
Find out how highest quality Cities Service Diesel Products can drastically reduce downtime, increase equipment life, and offer day to day savings in the cost of all your diesel motor oils and fuels. Contact the Cities Service representative nearest you, or write Cities Service Oil Company, Sixty Wall Tower, New York 5, N. Y.

CITIES SERVICE

QUALITY PETROLEUM PRODUCTS

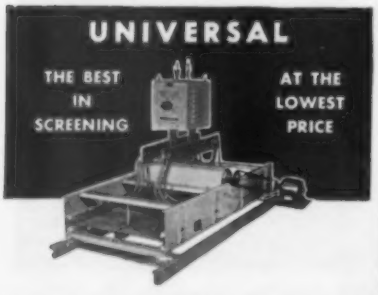


• Long jaws, wide throw, and narrow angle of nip result in the high capacity of the Rogers Iron Works 40- by 48-in. jaw crusher. Oversize bearings are self-aligning. Welded steel frame is built of mortised tenon. Cross ribs of heavy cast-steel construction support the rear toggle seat. Frame is made in two sections for ease in handling. Hydraulic pressure system is provided for removing bearings from eccentric shaft. Pitman is made of special shock-resistant heat-treated cast steel. Pitman and side bearings are held in alloy steel removable cartridges. **(71)**



• Designed for the delivery of bulk materials, such as cement, sand and gravel, etc., this self-supporting hopper-type bottom dump manufactured by the Baughman Manufacturing Company uses gravity to discharge—the unit requires no power to unload. Sliding gates in the body bottom control the discharge flow of material. This body is available in lengths up to 34 ft. For bigger payloads Baughman has designed a model of the hopper-type bottom dump with parts of the body fabricated from lightweight aluminum and magnesium. **(72)**

• Model 510, the new Unit Challenger available from the Unit Crane & Shovel Corporation, features self-aligning, replaceable hook shoes; straight-in-line engine mounting with torque converter; hydraulic actuated clutches; and force feed lubrication. **(73)**



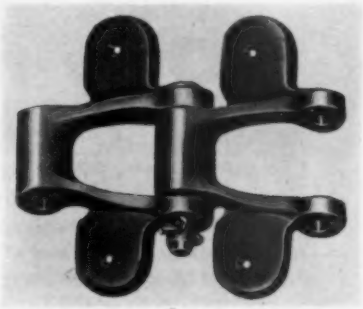
THE MOST MODERN AND EFFICIENT ELECTRIC HEATING EQUIPMENT AT A REASONABLE PRICE

- **VIBRATING SCREENS — All sizes and types.**
- **UNILEC HEATING EQUIPMENT**
- **UNIFLEX VIBRATORS**
- **UNIVIBE RIDDLES**

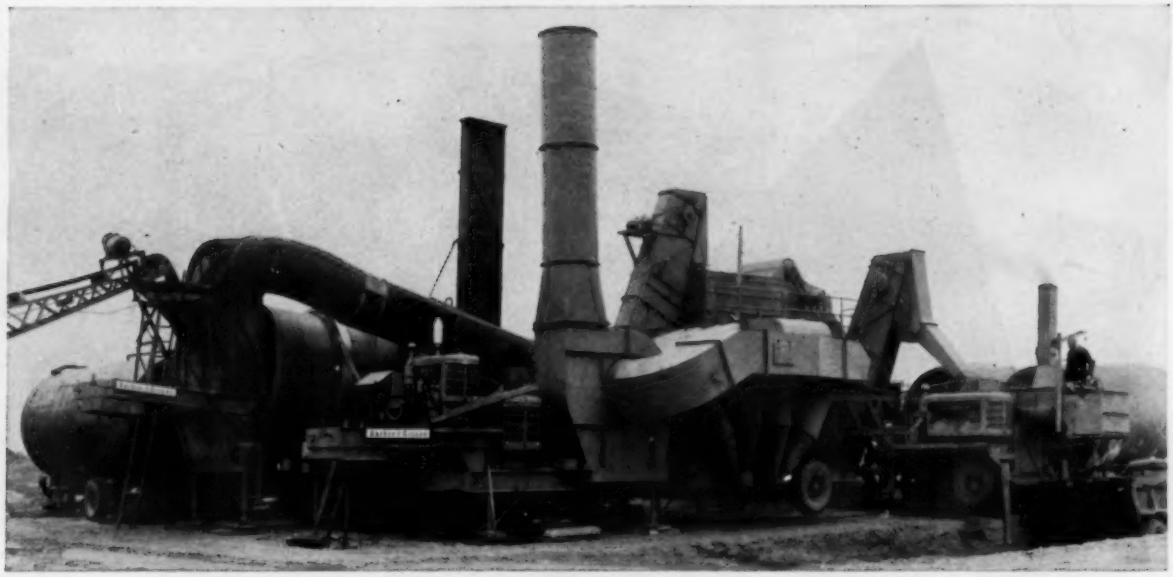
WRITE FOR NEW CATALOG No. 150.

UNIVERSAL VIBRATING SCREEN CO.
Racine, Wisconsin
Quality Screens Since 1919

• "The Mighty Mole," an aggregate handling conveyor system developed by The Triangle Engineering Company, consists of a tunnel section, an inclined conveyor belt, a turn-head chute, and an electrically-operated control panel. Loading gates in each section of the tunnel permit materials to be placed on the conveyor and brought to the chute heads in controlled sequence where they are delivered to bins or trucks below. The tunnel sections, made of steel plate and reinforced with I-beam ribs, may be assembled and disassembled easily without damage to the equipment. The specially-designed conveyor belt is troughed and guided on idlers of heavy-duty construction. The standard unit has a capacity of 450 to 525 t.p.h. Other capacity units are available. **(74)**



• Steel conveyor chain recently introduced by Robert A. Main & Sons, Inc., is manufactured for maximum strength conditions. Because of its simple design, it is easily assembled and taken apart. A wing atachment on each link makes it easy to attach wood or metal conveyor slats for all types of duty. **(75)**



How to lower the cost of asphalt paving

with Barber-Greene Continuous Plants . . . available in capacities from 20 to more than 200 tons per hour. Built for maximum portability, these plants produce all types of mixes at highest capacity, and for lowest operating cost. Once the proportions are set, operation is automatic; the human element is eliminated and manpower requirements are reduced to a minimum.

with Barber-Greene BatchOmatics . . . available in 2000, 4000 and 6000 pound sizes. Operating on inherently automatic principles, these plants save seconds at every point in the cycle. Instant changeover from automatic operation to manual production of mixes for the drive-in trade . . . instantly reset to preset repetitive cycle operation. New Dyna-Mix pugmill gives faster coating.

with the Barber-Greene Finisher. Having the widest choice of operating speeds, the Barber-Greene Finisher can lay every job at the maximum speed. It provides positive traction, superior maneuverability and unmatched ease of operation. Wide receiving-hopper simplifies truck discharge, eliminates spillage. No other machine paves as permanently, as speedily and as economically.

Write for literature on any plant in the cost-cutting line. Specify capacity. 56-25-AL

Barber-Greene BG

AURORA, ILLINOIS, U.S.A.

CONVEYORS . . . LOADERS . . . DITCHERS . . . ASPHALT PAVING EQUIPMENT

FRUEHAUF TRAILERS

"ENGINEERED TRANSPORTATION"

World's Largest Builder of Truck-Trailers

FRUEHAUF TRAILER COMPANY

10962 Harper Avenue • Detroit 32, Michigan

✓ **PLEASE SEND THE FREE LITERATURE ON FRUEHAUF CONSTRUCTION TRAILERS AT ONCE!**

NAME_____

COMPANY_____

ADDRESS_____

CITY_____ STATE_____

☆ *Fill in or just attach to letterhead and mail.*

THE EFFICIENCY OF YOUR

MONEYMAKERS

All roadbuilding contractors should be aware of the sizeable economies now made possible by innovations in roadbuilding Trailers in the complete Fruehauf line.

The new *Winchless Removable Gooseneck Carryall,* for instance, cuts front end unloading of heavy cranes and shovels to less than 15 minutes. The moneymaking *Fruehauf-Schonrock Cable Dump,* economical in cost and maintenance, delivers up to 4,000 lbs. more sand or gravel than conventional dumps, and is simple in design and operation. The *Airslide* Bulk Cement Transport* unloads cement or other pulverized materials at the rapid rate of 10 to 15 barrels per minute — with no mechanical device touching the commodity.

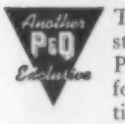
These provisions for speed, simplicity, and operating economy add up to increased profits every day, right now, for roadbuilding contractors. Send for illustrated literature!

*Trademark—Fuller Co.

FRUEHAUF FLEET IS PART OF YOUR ROADBUILDING PROFIT!

Labor Developments

Picket Line Sanctity



THE ubiquitous Teamsters Union has selected Philadelphia as the locale for a saturation organization drive. While leaders appear to be having a great deal of success, they may also have created for themselves a legal precedent which will substantially diminish the power of their principal organizing device, namely, the tradition of not going through a picket line. This has resulted from the fact that a relatively small employer, The Quaker City Motor Parts Company, has chosen to fight, even in the courts, rather than to capitulate to a demand for recognition by the Teamsters Union as the bargaining representative of the employees, very few of whom (if any) are members of the union.

The facts appear to be as follows. The company is engaged in the business of buying, processing, maintaining, storing, assembling, and selling automotive parts. Primarily, it is a wholesaler of these parts, and it warehouses a large quantity and variety of them, so that they are available to automobile dealers and repair men when required. Virtually all of the merchandise comes to the warehouse and leaves the warehouse in trucks. Much of the incoming material is delivered by common carriers.

Because the Teamsters Union established a picket line around this firm's warehouse, the trucking companies did not deliver any merchandise. Their drivers, who are for the most part members of the Teamsters Union, observed the tradition of picket line sanctity and refused to deliver merchandise through the picket line. The result was that the company received practically no deliveries.

When the situation became serious, the motor parts wholesaler went to the federal courts with a request for an injunction requiring the common carrier trucking company, The Interstate Motor Freight System, to deliver their merchandise. The federal court granted a preliminary injunction enjoining the trucking company, its officers, agents, and employees, from refusing, neglecting and/or delaying delivery to the motor parts wholesaler, at its place of business, of all property transported by the trucking company, and consigned to the motor parts wholesaler.

By S. HERBERT UNTERBERGER

S. Herbert Unterberger and Company
Economists-Consultants on Labor and Industrial Relations

Washington, D. C.-Philadelphia, Pa.

Furthermore, the court ordered the trucking company to deliver to the motor parts wholesaler all the property consigned to the wholesaler which is in the possession of the trucking company or "which may hereafter come into the possession or control" of the trucking company. The latter part of this direction is especially important since it not only required the trucking company and its employees to go through the picket line to deliver the merchandise currently in their possession, but also to *continue* to deliver merchandise which they will in the future receive from the motor parts wholesaler's suppliers.

Among the findings of facts upon which the court relied to reach its conclusion are the following:

(1) The common carrier has undertaken to transport and deliver to the motor parts wholesaler's place of business quantities of property consigned to the wholesaler by various shippers located in various parts of the United States.

(2) The trucking company has transported quantities of such property to its Philadelphia terminal, but it has failed and refused to deliver such property to the motor parts wholesaler at its place of business.

(3) The motor parts wholesaler has demanded delivery of the said property, but the trucking company has failed to deliver it because two unions have established an organizational picket line in front of the motor parts wholesaler's place of business, in an attempt to organize his unorganized clerical and shop employees.

(4) The two unions do not claim to represent any of the motor parts wholesaler's employees. They have not sought to arrange with the motor parts employer terms and conditions of employment of any of his employees, and they have not requested him to recognize them as a bargaining agent for any of his employees.

(5) The union which represents the trucking company's drivers and helpers does not claim to represent any of the motor parts wholesaler's employees.

(6) As a result of the failure of the trucking company to make delivery, the motor parts wholesaler will suffer great substantial and irreparable harm and injury in that (a) he will not be able to fill his customers' orders and will, therefore, lose the good will and present and future business of such customers, (b) he will not be able to continue the employment of his large, trained working force, and will, therefore, suffer dispersion and loss of his working force, and (c) his business will be ruined.

(7) An officer of the motor parts company has specifically asked one of the pickets what it could possibly do to prevent the interference by the picket with the entry of common carriers into its plant; and this picket answered that no motor carrier would be permitted into the plant until the plaintiff's employees had joined the union.

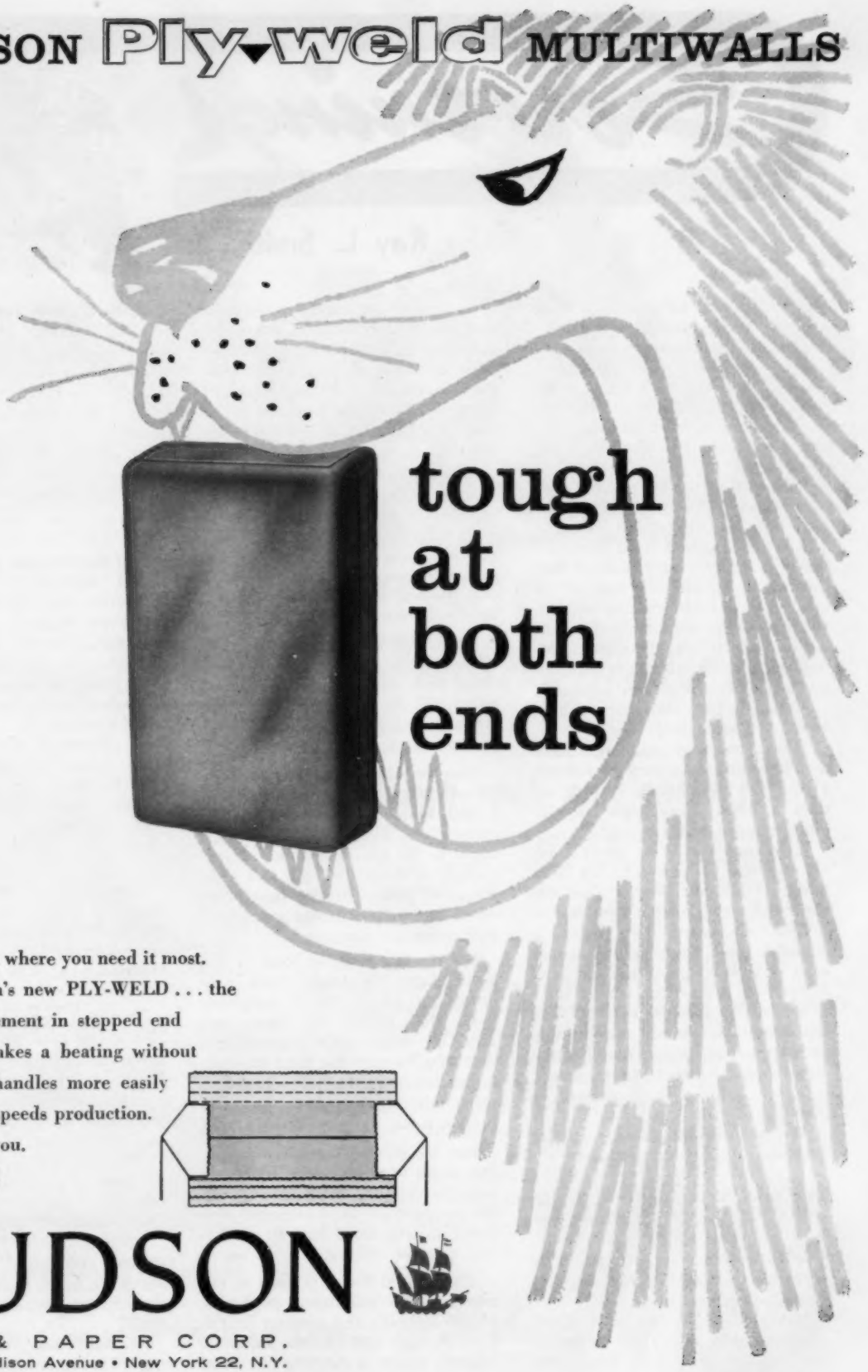
(8) Greater injury will be inflicted upon the motor parts wholesaler by the denial of the injunctive release sought than will be inflicted upon the trucking company by the granting of such release.

On the basis of this set of facts, the court concluded that the common carrier had a duty to accept, transport, and deliver property to the motor parts wholesaler's place of business. The court also concluded that granting this injunction would not be a violation of the Norris-LaGuardia Act.

This case will no doubt be appealed. The precedent which it establishes cannot be firmly relied upon until it has been reviewed by at least one higher court and affirmed. However, the important thing about

(*Continued on page* 120)

HUDSON Ply-weld MULTIWALLS



tough at both ends

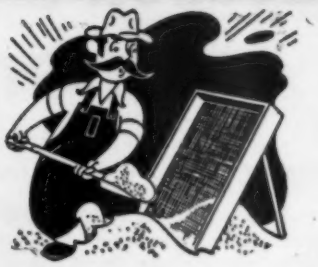
Extra strength where you need it most. That's Hudson's new PLY-WELD . . . the latest improvement in stepped end Multiwalls. Takes a beating without breaking . . . handles more easily at the spout, speeds production. Let us show you. Write Dept. 62

HUDSON

PULP & PAPER CORP.
477 Madison Avenue • New York 22, N.Y.

Plants at PINE BLUFF, ARK. • PALATKA, FLA. • WELLSBURG, W. VA.

Screenings



by Ray L. Smith Jr.

RECENTLY we heard a good story worth passing along.

It seems that the vice-president of a great oil company was seated at his desk one night, trying to complete a very important task. His door opened, and a man said: "Do you want to subscribe to the Literary Digest?"

The vice-president in-charge-of-sales yelled "NO," at which the magazine salesman closed the door and went his way. After a moment's thought, the executive decided that that was a HELLUVA way to sell magazines, so he hurried to the door and called the man back. Launching into a pep talk, the sales executive endeavored at length to convey his idea of a correct approach.

At length, his visitor stopped him, saying: "Listen, Bud:

"I'm a married man, and have two beautiful daughters in college. I own my own home. I work six days a week, from eight in the morning until eight at night."

"If a man says 'Yes,' when I ask my question, I sign him up in a hurry. If he says 'No,' I close the door and go on to the next one.

"For 15 years, I've made a damned good living selling magazines MY WAY, and the old law-of-averages is good enough for me."

We don't suggest that YOUR representatives should adopt any such approach, but the moral of the story should be clear to anyone.

If you wanna book orders, ya gotta make calls.

Are you telling enough people each day about your products?

The New Stone Age

OUR LIFE 100 years from now may well be like this:

We'll be living in a fantastic new stone age, a rich but last stop for industrial civilization.

We should be getting most of our atomic power, and 20 or 30 metals and minerals, including iron, from ordinary rock.

We'll have to use stone because coal, iron, uranium and other deposits of natural resources will be gone, all eaten up by our tremendously expanding world population—maybe 7,000,000,000 humans in the year 2050 instead of 2,600,000,000 now.

Crushed stone, and the sun and ocean and air, could keep this huge population going for thousands of years. This Stone Age would use up each year only enough stone to form a layer one-eighth of an inch thick over the world's land masses. A mile dept could last 500,000 years.

From 100 tons of crushed rock, it's possible to get eight ton of aluminum, five ton of iron, 40 lb. of nickel, 20 lb. of copper and varying amounts of 20 to 30 different products at a time.

One ton of granite can yield one-seventh of an ounce of uranium and a half ounce of thorium, also an atomic fuel. These tiny amounts are equal to 50 ton of coal in energy, enough to mine the rock and have plenty of power left for heat, electricity and energy to run a machine civilization.

We needn't lack for food in this Stone Age. We might have new breeds of green plants supplying foods that looked like steak and eggs. We might have domesticated "sea pigs," some new kind of vegetarian beast grazing the oceans to turn microscopic plant life into protein foods, as cows do with grass.

But all this isn't likely, and we face other troubles earlier unless we stop wasting our brain power, unless we produce more engineers and scientists, and learn how to encourage creative thinking.

The United States is short of engineers and scientists, producing 45,000 annually and needing 75,000. The shortage will become far more critical unless something is done, pronto.

Potpourri and Succotash

Jump Master: "When you bale out, count ten and then pull the handle that releases your parachute."

Two paratroopers were floating gently to earth when a third man went plummeting by, his parachute unopened. "Poor guy," said one. "I knew he'd never make it. He stutters."

The day was rainy and the cellar leaked. Bertram, 5, was having a wonderful time sloshing around in the water when his mother caught him, soaked to the skin. As punishment he was ordered to stay in his room until his pants were dry.

A short time later his mother heard a commotion in the basement. "Are you down there wetting your pants again?" she bellowed.

There was a long pause and then a deep masculine voice replied: "No, Ma'am, I'm just reading the meter."

Worried man to psychiatrist: "All day long I eat grapes."
Psychiatrist: "So what? Lots of people eat grapes."
Worried man: "Off the wall paper?"

Two golf opponents reached the 18th green even up. One had only to sink a tricky 10-foot putt to win. He lined up the putt, pulled back for the stroke when a sudden noise stayed his hand. A funeral cortege was passing by.

The golfer snapped to attention, whipped off his hat, held it over his heart until the last car disappeared. Then he calmly sank his putt.

"Congratulations," said his opponent grudgingly. "It took iron nerve not to let that funeral procession flutter you into missing your putt."

"It wasn't easy," admitted the victor. "On Saturday we would have been married 25 years."

The Athey PR20-Cat DW20. Capacity 22.5 cu. yds. Speeds up to 32.1 MPH for high-speed hauling.

The Athey PR15-Cat DW15. Hauls 22 tons of rock or other material at speeds to 31.3 MPH.

The Athey PR21-Cat DW21. 31 ton capacity, maneuverable for crowded areas. Standard or heated body.

ATHEY OFFERS YOU

the only COMPLETE and PROVED Trailer Line

The new Athey Hydraulic Ejection Trailer. Handles sticky, hard-to-discharge materials, controls dumping, spreads load at dump.

The Athey PD20-Cat DW20. Dumps on the go, speeds long haul jobs, capacity 31 tons at speeds up to 25.1 MPH.

For tough rock and earth jobs...

Whether it's big rock — gumbo clay — ore, mud or earth you have to move, there's an Athey Trailer to answer your material hauling problems. Athey is the leader in the trailer field and offers the only *complete* line of sizes and types of high-speed material handling trailers.

Each unit is built to rigid standards of quality construction that mean long life and low upkeep. Proven Athey design features are setting the pace for faster dumping, greater maneuverability, easier loading and higher production.

Select the exact size and features to gear your job for highest output. Depend on quality-built Athey Trailers powered by Caterpillar Wheel-Type Tractors. Ask your Athey-Caterpillar Dealer for information on "the complete line" today, or write direct to us. Athey Products Corporation, 5631 West 65th Street, Chicago 38, Illinois.

THE *Complete* TRAILER LINE... *by the Leader*

Athey

Completed in 1954, this Research-Cottrell precipitator cleans the gases from Kiln No. 5 of Missouri Portland's Prospect Hill Plant. The gases from this rotary wet process kiln pass from the kiln end housing, through the precipitator, induced draft fan and then up the stack.

Rapping puffs were eliminated in this installation with Research-Cottrell's electronically controlled M. I. Rappers. This method of continuous, sequential rapping avoids dust re-entrainment in the gas stream and assures optimum precipitator performance at all times.

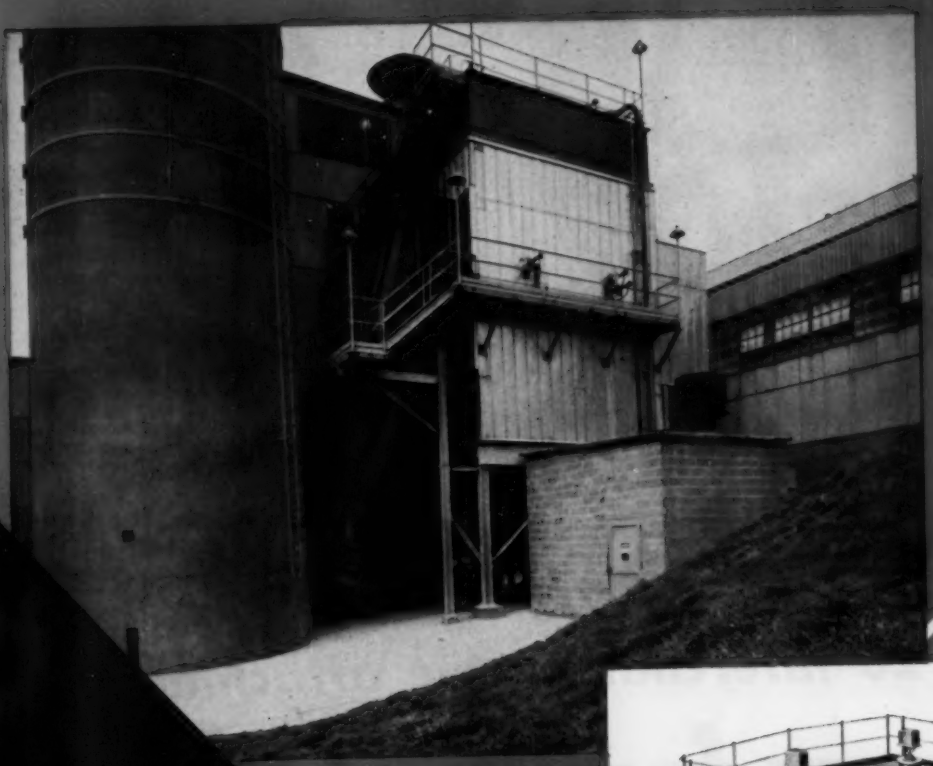
Research-Cottrell Precipitator

at Missouri Portland

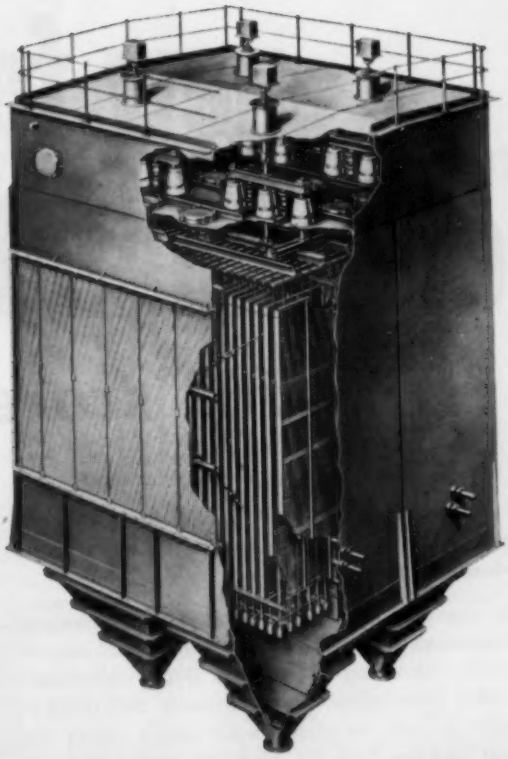
In addition to this installation, Missouri Portland has ordered three more Research-Cottrell precipitators. One, installed early this year, cleans the gases from Prospect Hill's 12′ x 450′ wet process kiln.

Two other units have been ordered for two dry process kilns at the Sugar Creek Plant, Kansas City, Mo. M. I. Rappers will be included on all these installations.

For a detailed description of Research-Cottrell precipitators and their applications in the cement industry, write for Bulletin GB.



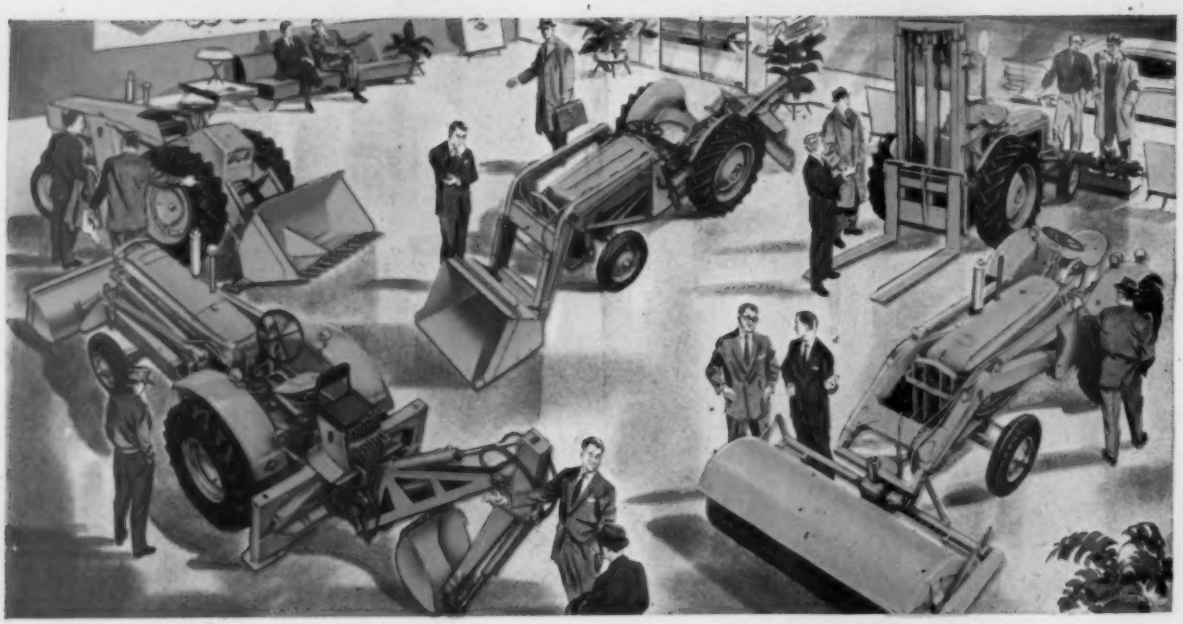
At Left:
Shows Research-Cottrell precipitator, connecting flues and stack. Cement block building in foreground at right is substation which contains two half-wave rectifier sets and M. I. Rapper control equipment.



At Right:
Cutaway drawing of the Research-Cottrell expanded metal plate precipitator installed at Prospect Hill Plant of Missouri Portland Cement Co.

Research-Cottrell, Inc.

Main Office and Plant: Bound Brook, New Jersey • 405 Lexington Ave., New York 17, N. Y.
Grant Building, Pittsburgh 19, Penna., 228 No. La Salle St., Chicago 1, Ill. • 111 Sutter Bldg., San Francisco 4, Cal.



5 tractors, 20 interchangeable attachments

new family of power-matched packages

for scores of jobs

M-H-F WORK BULLS PAY OFF as high-performance, money-saving units for contractors, utilities, industry, municipalities

The reason — integrated design! Both tractors and attachments are designed for *multiple machine versatility*. For example — a Work Bull with a loader mounts interchangeable attachments that quickly, easily convert the same tractor into a highly efficient backhoe, fork lift, swinging crane, grader or any of many other highly efficient tools. And at a surprisingly low cost.

In five to 15 minutes you can mount or dismount any Work Bull attachment. Switching involves merely one man—no wrenches, no special gear. And front-end attachments utilize the same hydraulic arms and frame. Backhoe attaches or detaches in less than 5 minutes!

Work Bull attachments include the loader, blade, fork lift, mower, backhoe, snow plow, auger, broom, pipe and cable layer and others to meet your specific needs.

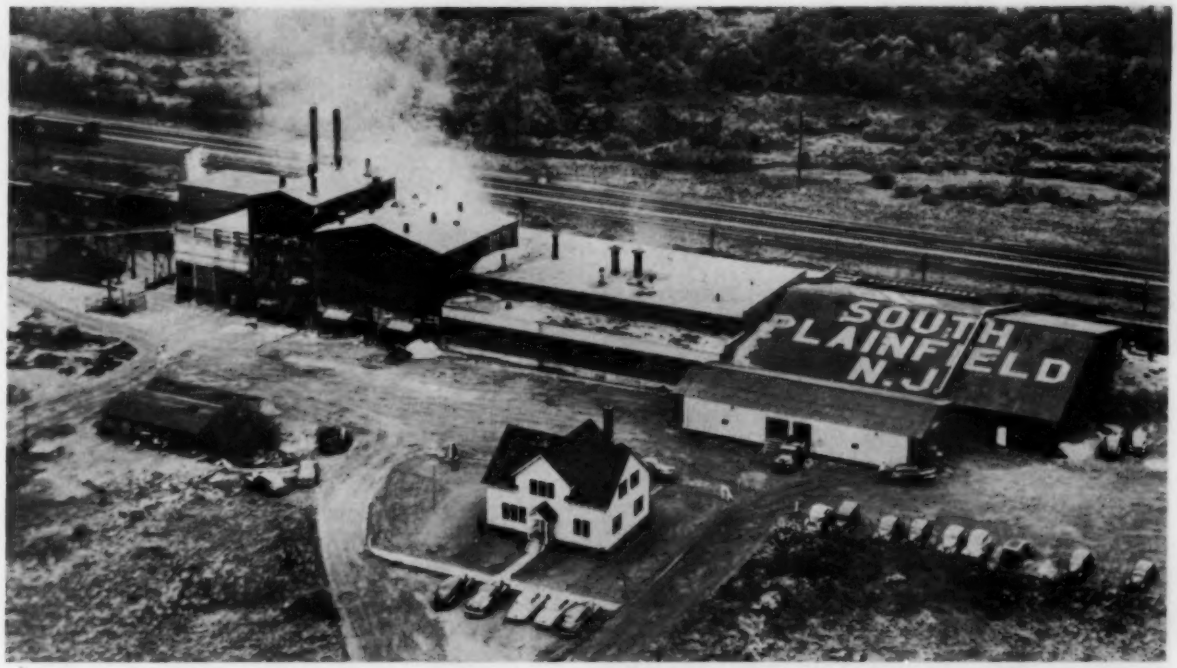
Get full details and the name of your nearest distributor. Write for 24-page catalog.

Enjoy the advantages of a single source, one responsibility for sales and service on both tractors and attachments!

M·H·F WORK BULLS

Division of Massey-Harris-Ferguson, Inc.

22-B QUALITY AVENUE RACINE, WISCONSIN



The South Plainfield, N. J., plant of the American Rock Wool Corporation, where a bulk handling system has drastically cut costs.

American Rock Wool Bulk System Pays Off in Lower Handling Costs

Another ON THE SPOT Report

A NEW bulk-handling system, built by the Gifford-Wood Company, Hudson, N. Y., has in its year of installation cut work-hour requirements by two-thirds and has eliminated the heavy manual labor at the South Plainfield, N. J., plant of the American Rock Wool Corporation. It is the opinion of company officials that the system will pay for itself within 2½ years.

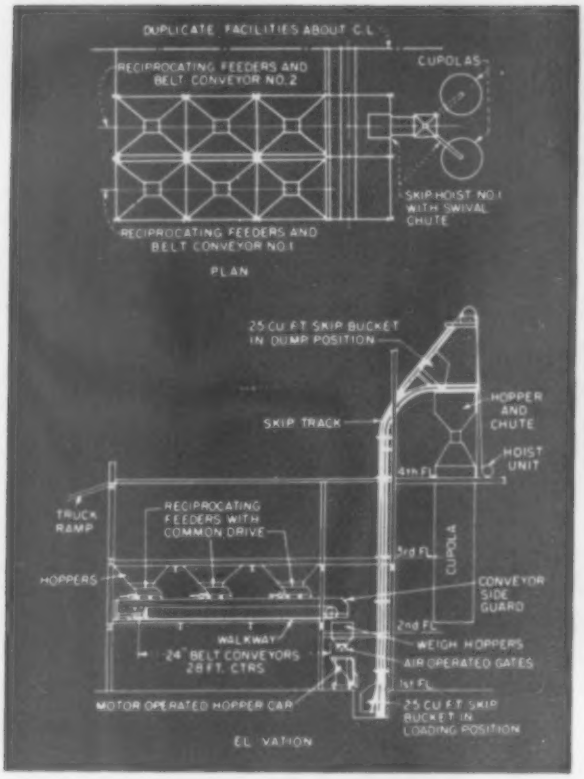
American uses blast furnace slag and coke as basic materials to manufacture and fabricate blankets, blocks, and other forms of insulation, chiefly for industrial uses. The new system delivers both the slag and coke from outdoor storage bins to the processing equipment within. The system which has been installed there can be modified to fit any given set of conditions in a plant handling a variety of materials, such as ores, sand and gravel, crushed stone, etc.

Essentially, the system at the South Plainfield plant comprises the following equipment, as shown in the accompanying cross-section sketches: (1) 12 reciprocating feeders, one located at the base of each storage bin; (2) four belt conveyors, each 24 in. wide by 28 ft. long, one located beneath each row of bins; (3) four weigh hoppers with air-operated gates, one at the delivery end of each of the four conveyors; (4) a rail-mounted transfer car which travels beneath the weigh hoppers; and (5) two 25-cu. ft. capacity skip hoists, located alongside the transfer car tracks. Each of the skip hoists charges two cupola furnaces.

By ROY L. PECK

The reciprocating feeders deliver materials to the conveyor belts in an even stream, each belt receiving material from three feeders. Those delivering to a given belt are driven by a common motor and may be disengaged from the drive mechanism so that one bin (or two or three) in any one row may be discharging at a given time.

Each conveyor belt delivers to an individual weigh hopper equipped with automatic controls to stop the belt when a pre-set weight has been delivered. The hoppers store material until it is required by the two-compartment transfer car, which can receive materials from any of the four weigh hoppers. It discharges into the bucket of either of the two

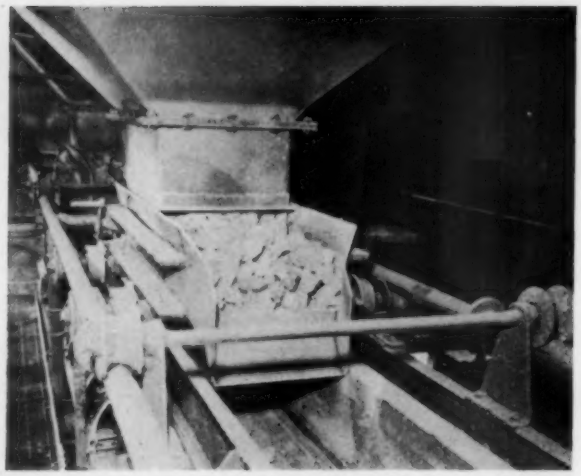


Schematic diagram of the handling system showing cross-sections and the plan of bins, feeders, conveyors, weigh-hoppers, transfer car, and skip hoists.

skip hoists. The bucket then travels vertically upward along iron-angle guides and upends itself into the hopper serving the chutes leading to the two cupolas.

When the charge within a given cupola falls below a pre-determined level, a light goes on at the base of one of the skip hoists. The transfer-car operator then fills the skip-hoist bucket with coke and pushes the button actuating the motor drive, which causes the load to empty into the cupola. When this bucket returns, the operator fills it with slag and again sends it to the cupola. Two loads of slag complete the charge in the cupola.

While he waits for the next light to go on, the operator fills the two compartments of the transfer car, one with coke and the other with slag. Thus, when materials are needed, he can start replenishing the charge without delay and can pick up the second load of slag from the nearest hopper as the load of coke or first load of slag is being delivered. The one-man operation is a special feature of the entire system.



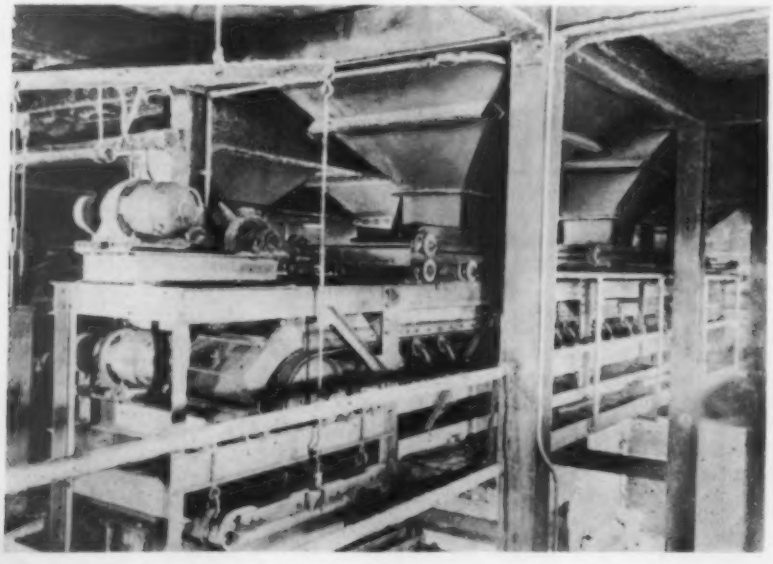
Materials are discharged from storage bins (above) onto conveyor belts. Reciprocating feeders (center) distribute them evenly on the belts.

Under the old system bins were of somewhat different construction, and materials were shovelled into wheelbarrows, much as home coal bins are emptied. These wheelbarrows were then pushed by hand over to the top of the cupola and the contents of each barrow were emptied into it. This method required the work of three men each shift, and the job was heavy, dirty, and disagreeable.

In the cupola the coke is burned and the heat melts the slag. The molten slag is "poured off" past a high-pressure steam jet which disperses the molten stream and forms millions of small nodules, each having a thread-like streamer. These nodule - and - streamer combinations float down slowly onto a continuously moving belt conveyor which carries them to processing areas, where they are fabricated into mineral wool end products.

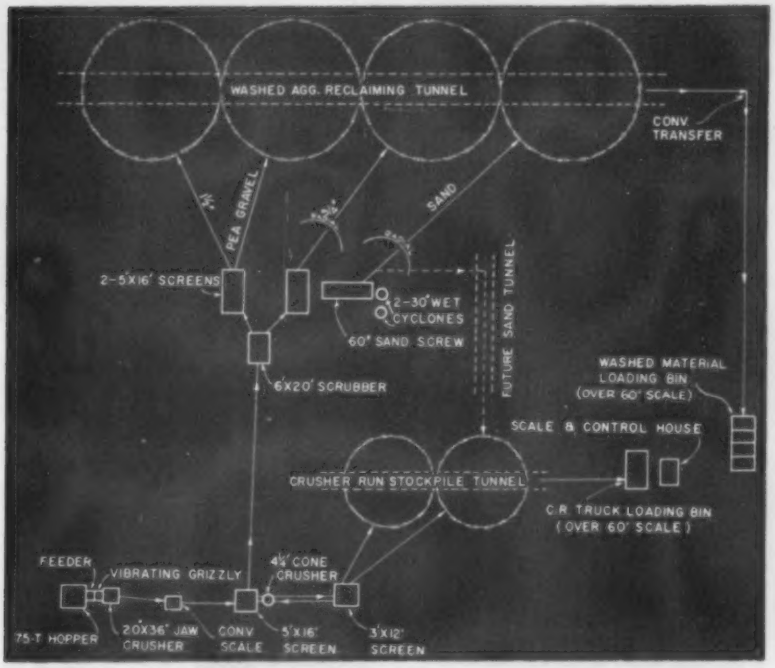
It is planned to install additional belt conveyors to take the raw materials from incoming cars or trucks to the bin storage area. At American Rock Wool's two Wabash, Ind. plants, feeders, conveyors, and bucket elevators handle raw mate-

(*Continued on page* 90)



After the conveyor delivers a load of material to the weigh-hopper (lower left), it is automatically stopped when the pre-set weight is delivered. Each conveyor serves three bins.

A schematic flowsheet of the 400-t.p.h. Star Rock Products washed-and-screened concrete aggregates plant between Santa Ana and Corona, Calif.



By HARRY F. UTLEY

Star Rock Concentrates On Processing Sand and Gravel

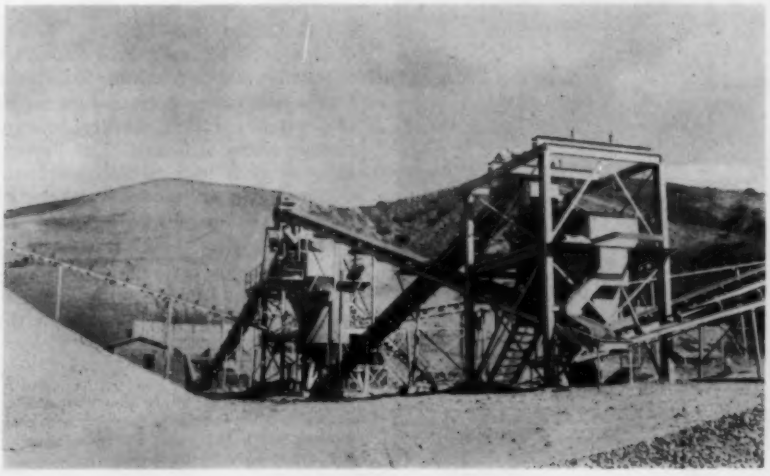
digging, hauling, and delivery contracted

Another ON THE SPOT Report

NEWEST and one of the most advanced aggregates plants put in production in southern California during the last year or so is the 400-t.p.h. operation of Star Rock Products.

Located in Santa Ana Canyon in Orange County, about midway between Santa Ana and Corona, the new facility attained full production on washed-and-screened concrete aggregates in November, 1956. The dry section of the plant, however, had been turning out crusher-run-base product for a full six months prior to the erection and completion of the washing section.

The new plant is a marvel of modern automatic operation. Except for a tractor-bulldozer to dress up the stockpiles, no shovels or loaders are in evidence, all finished materials being reclaimed, blended,



This view shows the "dry side" of the Star operation. The conical-bottom tank near the center is the cyclone dust collector. The top of the hillside pit in the distance is nearly 50 ft. higher than the processin plant.

transported, and weighed into trucks automatically by electronic remote control. The plant is of steel and concrete construction in its entirety and embodies operating refinements and ideas of F. E. MacDonald, who designed it and supervised its construction.

Mr. MacDonald, a veteran of 35 years in the field of aggregate-plant design and operation, also planned and built the Century Rock Products plant near El Monte, Calif., in 1953.* Basically—and because its design proved up so well during its three years of constant operation—the Century plant served as the prototype for the new Star facility, the two concerns being affiliated.

At the outset, the management elected to confine its efforts in the canyon entirely to the expert processing of quality gravel and sand. Therefore, it operates no highway delivery units of its own, neither does it excavate the deposit, which lies high in the Peralta Hills adjoining the plant. It was felt that highway transportation is a field of its own, and that the peculiarities of occurrence of the sand and gravel in the 200-acre deposit could be better solved and worked by an experienced excavator.

* See PIT AND QUARRY, June, 1954, page 98.

The scalehouse attendant loads the trucks and issues delivery tickets; he also sees that the bins are kept full. The row of lights (in line with the top of his hat) indicate full bins and open or closed tunnel gates. The lever above the window controls the turnhead over the 4-compartment bin.

Boulders up to 18 in. in diameter are reduced to 3 in. or smaller in this jaw primary crusher, which has a 20- by 36-in. opening. It is driven by a 50-hp. motor.

The glacial sand and gravel deposit represents a 50-year reserve, all of it lying at a level considerably higher than the processing plant, allowing full gravity feed to the hopper. It is stripped, ripped out, and bulldozed down by Caterpillar D9 tractors by contract on a tonnage basis. The top size seldom exceeds 12 in.; an 18-in. rail grizzly which spans the hopper opening rejects any oversize to waste.

The material is extremely hard-packed and, at times, almost monolithic in place. The compaction is believed to be due to heavy ice layers during the glacial epochs of the Pleistocene period. A sprinkling of silt and clay through the deposit, too, helps to cement the particles. Such material, however, is relatively easy to remove during processing. As a result, the excavating contractor resorts to blasting methods to loosen the material, drilling 40-ft. vertical holes which he loads with explosives having slow-expansion characteristics. The resulting shots spring the pit-run outward, so that it can be readily attacked by the tractor-rippers and bulldozers.

From the 75-ton hopper, a Syntron F86 feeder and a Symons vibrating grizzly combine to feed all plus 3-in. gravel to a Kue-Ken 20- by 36-in. primary jaw-crusher. Grizzly throughs and crusher product are then carried by a 36-in. by 150-ft. belt conveyor to a 5- by 16-ft. Hewitt-Robins Vibrex double-deck scalping screen. Plus 1½-in. screen rejects are chuted to a Symons 4 ¼-ft. cone crusher for secondary reduction.

At this point the material may either be dry-sized for highway-base use, or it can go by a 30-in. by 250-ft. belt conveyor to the washing-and-screening tower. If road-base product is desired, a 3- by 12-ft. Vibrex double-deck screen makes two sizes, minus 1½-in. and minus ½-in., the two products being carried by a pair of 24-in. by 150-ft. stacker belts to storage above a tunnel. The dry-sizing screen is in closed circuit with the cone crusher for the return of any plus 1½-in. gravel.

To eliminate dust on the "dry" side, a cyclone collector is being installed in conjunction with a Sturtevant Planovane exhaust fan on the cone crusher and screens.

"We've had starts in below-zero weather —and never any trouble"

McElroy-Wilken
Kalispell, Montana

One of the things Floyd McElroy and Fred Wilken like most about the CAT* No. 955 Traxcavator is its cold-weather starting. "We've had starts in below-zero weather and never had any trouble," they say.

Producing ready-mix concrete and digging basements under contract, they were using separate machines for loading and excavating in 1955. Then they bought the Traxcavator*. "We chose a No. 955 because Caterpillar makes the best machines on the market," both agree. "They're heavier built and have a reputation for standing up better."

Wally Buck, operator of the Traxcavator, says: "The No. 955 handles both the loading and excavating jobs a lot faster. It works circles around competitive machines." He's loading gravel from a stockpile in the photograph shown above.

The No. 955 is one of three Cat-built Traxcavators. Its bucket capacity is 1½ cu. yd. with 70 HP. The smaller No. 933 (1 cu. yd., 50 HP) and the larger No. 977 (2¼ cu. yd., 100 HP) complete the line.

All three are designed from the ground up as excavating and loading machines. And all have these advanced features: 40-degree bucket tilt-back at ground level for more leverage, less spillage. High reach without strain. Long-lasting oil clutch. Convenient controls. "Built-in" operator comfort.

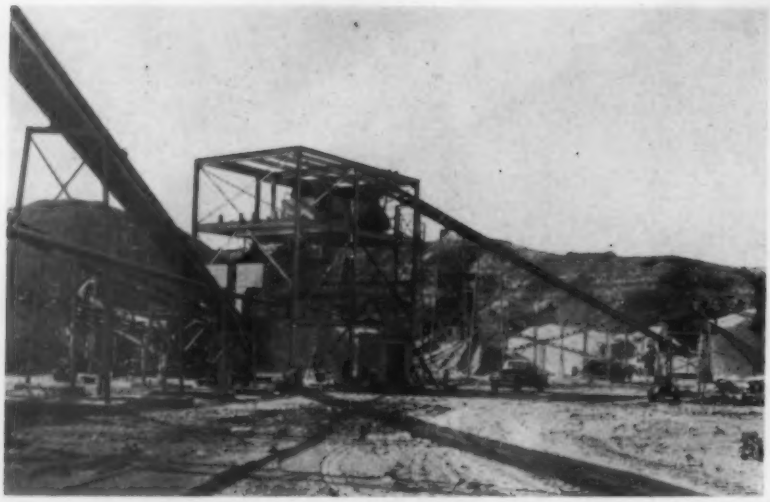
Your Caterpillar Dealer will gladly give you a demonstration on your job. And you can count on him to protect your investment with reliable parts and service.

Caterpillar Tractor Co., Peoria, Illinois, U.S.A.

CATERPILLAR*

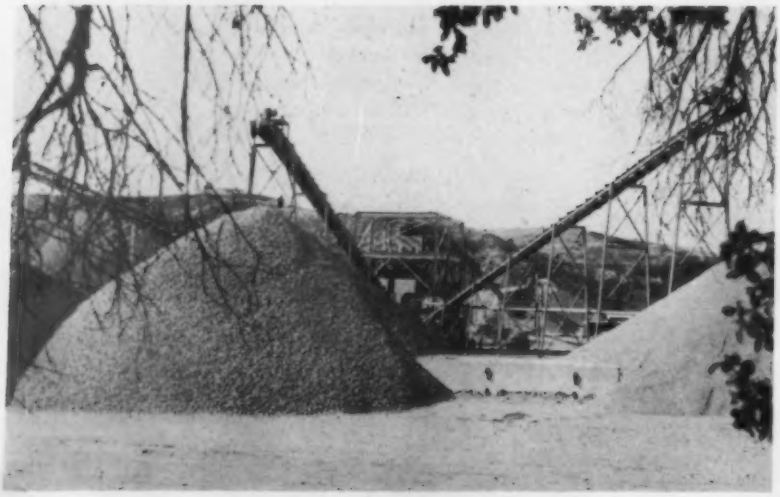
*Caterpillar, Cat and Traxcavator are Registered Trademarks

**WANTED—
THE HARD WORK**



This view shows the long conveyor running from the scalping and secondary crushing station to the washing-and-screening tower. The scrubber (top) feeds to the two vibrating screens arranged in tandem.

Two wet cyclones extract extreme fines from remnants in the sand-screw overflow wasted over the weir. Between 5 and 10 tons of sand is thus recovered hourly.



The conveyor to the washing-and-screening station discharges the minus 1½-in. scalping screen product directly into a Bodinson 6- by 20-ft. scrubber. Five feet at each end of the scrubber barrel is blank, the central half having been perforated with ⅝-in. taper-drilled holes to reduce blinding. The scrubber shell was rolled from ½-in. steel plate and a spiral lifter insures thorough abrading to remove the silt and clay. Water is introduced at both ends of the cylinder, which turns on two 3-in. trunnions. The perforated center section thus operates as a trommel, taking out the sand and fine gravel.

Two 5- by 16-ft. Vibrex 2-deck screens arranged in tandem size and spray-wash the scrubbed product. Top decks of the screens carry 1¼-in. mesh; bottom decks of each are divided between ¼-in. and ⅜-in. cloth. Trommel-section throughs are sized on the lower decks of both screens; the large gravel coming off the end of the scrubber is split-fed to the top decks of the screens. Retained gravels in three commercial sizes designated as 1½-in., ¾-in., and "pea," are carried by three stockpiling conveyors to storage over a tunnel. Head pulleys of the stackers are 40 ft. above ground level.

Fines passing the bottom decks of the screens are processed for concrete sand by a 60-in. Wemco sand-preparation screw. Overflow at the weir is diverted to a steel sump box from which the settlings are pumped, by a 6- by 8-in. Lightning rubber-lined pump, up to two 25-in. Duraclone wet cyclones. The Duraclones extract the clean fines and return them as underflow, which is blended into the sand as it nears the upper (discharge) end of the screw classifier. Between 5 and 10 t.p.h. of fine sand in the range of 50-mesh down to pan is recovered by this method —good, fine specification sand that would otherwise be lost as remnants in the waste. Waste water, incidentally, is piped to a series of four settling ponds for progressive desilting before it is returned as clear water via Gypsum Creek, which intersects the property, to the Santa Ana River nearby. Water for washing (the plant requirement is 1,500 g.p.m.) is pumped by a 150-hp. Peerless pump from a deep well near the river bed and is carried by a 10-in.

Stockpiling conveyors build up finished-aggregate storage over a 350-ft. long concrete tunnel. Sixteen remote-controlled gates then feed the required sizes onto the reclaiming belt inside the tunnel.

pipeline nearly one-third of a mile to the plant. Pressure of 75 lb. is maintained at the top of the washing tower.

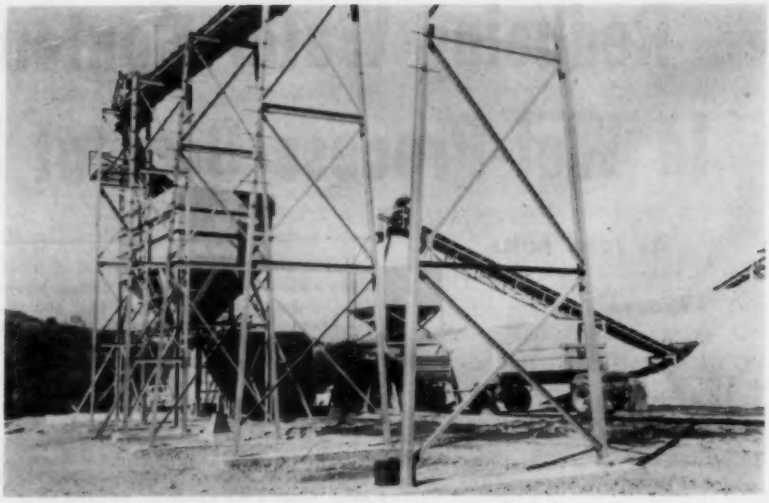
The sand is stockpiled in line with the gravel piles over the tunnel. Radial conveyors are employed to increase sand and ¾-in. gravel storage capacity; the 1½-in. and pea-gravel stackers are fixed and build up conventional conical piles.

The recovery tunnel beneath the washed-material stockpiles is of reinforced concrete and was erected by the Economy Forms Company, Los Angeles, using slip-form construction. It is 6 ft. square in cross-section and 350 ft. long. According to Mr. MacDonald, the use of the steel forms produced a structure of the highest type, of pre-determined strength and, in the end, proved more economical than would have been the case, had the company built its own forms and poured the concrete. A 30-in. by 375-ft. belt operates in the tunnel to reclaim the aggregates, transferring at right angles to another 30-in. by 250-ft. long conveyor which runs up to the 175-ton, 4-compartment truck-loading bin.

The scalehouse is located midway between the above-mentioned washed-aggregate bin and the crusher-run-base bin. The latter is kept filled by a 30-in. by 200-ft. conveyor running from the tunnel beneath the sized road-material piles. Each of the two truck-loading bins is directly above a separate 60-ft. Fairbanks-Morse platform scale.

Tunnel gates over the road-material reclaiming belt always remain open to a degree, so as to blend the right amount onto the belt as soon as it begins to move. The 75-ton loading-out bin is equipped with a high-level indicator which automatically starts or stops the belt to keep the bin full.

The washed-aggregate compartmented bin is similarly controlled. The scalehouse attendant regulates the flow of sand or gravel from the piles over the tunnel. Red lights on his control board inform him when the compartments are full. From his remote station, the operator can open or close any of the 16 tunnel gates. A row of 16 yellow lights on the board indicates gate positions—lighted when open; unlighted when closed. At the touch of a button the operator can, by electrical impulse, open or close any of the air-ram-operated gates in the tunnel. The truck-loading gates are directly controlled by lever on the air lines from the scalehouse, while the dials of the scales register the amount going into the truck and trailer.



Reclaiming belts from the tunnels feed the truck-loading bins, each of which straddles a 60-ft. platform scale. The scalehouse is centered between the washed aggregate (left) and the road-material bins.

Since the delivery units are already on either of the 60-ft. scale platforms before loading commences, it is a simple matter to discharge the predetermined tonnage into the bodies. There are no odd pounds to record and compute, as is the case when trucks are loaded at one point and weighed out at another; delivery tickets invariably are in even tons and end in "000." Carriers load with dispatch, and the scale operator usually is able to ticket a truck even before it gets on the scale. Since it takes less than a minute usually to load out 16 or 18 tons and pass the driver his ticket, truck line-ups are eliminated.

Futher refinements at the Star plant include the early installation of a Fairbanks-Morse recording conveyor scale on the belt leaving the primary crusher. This will provide an automatic record of input, useful in determining cost of raw-material production. At the same time it will reveal, along with a record of shipments, a constant and accurate inventory of in-plant product.

Another washed-sand pile will also be established over a short recovery tunnel to blend, or "sweeten," the crusher-run material. Radial tracks serving the sand stockpiling will be extended to form a wider arc, enabling the conveyor to swing away from the washed-stockpile area to build this separate pile.

An asphalt plant will also be set up on the property this year.

All conveyor belting, troughing, and idler rolls were supplied by Hewitt-Robins. The roll bearings require lubrication only infrequently, about once in 2,000 hours of operation. Valley Industrial Supply Co., Ontario, Calif., furnished the pulleys, shafting, and power-transmission equipment.

Since the new plant adjoins a limited-access express highway, the company plans, as a safety measure, to utilize the existing highway bridge crossing Gypsum Creek as an underpass, so that trucks leaving and entering the plant will not have to cross the highway at any time.

As mentioned, the Star and Century aggregate plants are affiliated in ownership. E. O. Rodeffer is president. Mr. Rodeffer entered the industry in a small way in 1946, when he set up his first batch plant. From two small war-surplus trucks to mount his first mixers, and an "office" which consisted of a box on a telephone pole, his San Gabriel Ready Mix plants have grown to four modern batching installations in Pasadena, Sunland, San Gabriel, and El Monte—and a fleet of 70 truck-mixers. Another affiliate, Admixtures, Inc., markets a packaged product called "Colorfull," which combines pigment and selected admixtures. It is sold to the Western ready-mix industry for the production of colored ready-mixed concrete.

James C. Spence was recently named New York City area representative for the Zonolite Company of Chicago, Ill. He had previously served for four years as an engineer with the Vermiculite Institute. Mr. Spence will contact architects, engineers, and contractors.

Reducing Water Content of Slurry In Wet-Process Cement Manufacture

By JOHS. RUTLE
A/S Christiania Portland Cementfabrik,
Oslo, Norway

This article describes a method of reducing the water content of slurry by the use of a slurry additive, produced by a certain treatment of peat or boggy soil with alkali. In a mixture composed of peat (boggy soil) and alkali stored in the air complicated chemical reactions take place, resulting, among other things, in the formation of compounds rich in carboxyl groups, to which the water-reducing effect of the product is supposed to be attributed.

The method has been extensively used since World War II. For a certain slurry the water content can be reduced to 25 percent in plant operation. This additive acts as a grinding aid. Laboratory experiments have shown a savings of more than 15 percent in grinding energy for raw-material grinding.

The additive also reduces dust concentration in kiln exit gases. Dust loss for a certain kiln is more than twice as high for normal slurry without an additive than for slurry with an additive. However, in kilns provided with certain heat-exchange devices, the additive may bring about a more irregular kiln operation.

It is emphasized that the effect of the additive depends on many factors, such as the raw materials utilized for cement production and the nature of the peat or boggy soil. Finally, it is emphasized that the use of the additive not only means less water in the slurry but also a slurry of another nature—a slurry which behaves in a different way in grinding, handling, and kiln operation.—J. R.

Another P&Q Exclusive

DURING the last years considerable endeavor has been made to reduce fuel consumption in cement production. The main reason for this is the high cost of fuel, which in Western Europe today is more than four times as high as before World War II, while cement costs less than twice as much as before the war.

In the wet process more than one-third of the fuel is lost through water vapor escaping through the stack. It is therefore most important to lower the water content of slurry. Reduction of the water content by filtration of the slurry is used to only a small extent in Western Europe.

Much research work has been carried out in laboratories for the purpose of finding surface active additives, which reduce slurry viscosity and hence permit a reduction in slurry water content. It is known that additives, which increase the pH value of the slurry, will as a rule reduce viscosity. It is also known that certain colloidal substances have a viscosity-reducing effect on the slurry. Among the materials which have been tried in laboratories the following may be mentioned: alkalies, water glass, sulphite refuse acids, black lye, dextrin, and sodium phosphates.

In practice, however, such additives have been used to a rather small extent. This is partly due to the fact that the cost of the additives is so high relative to the results obtained that the addition scarcely pays. In some cases the materials have proved to be less active in practice than in experiments on a small scale in the laboratory. Some of the materials added may cause a great decrease in the viscosity of the slurry at first; but on standing for some days, the viscosity of the slurry again increases.

The method which will be described in the following has in some cases proved to have great advantages over other methods utilized for the reduction of slurry water content. This method is based on the use of additives arrived at by a certain treatment of peat or boggy soil with alkalies.

In contrast to fossilized vegetable matter such as brown coal, peat and boggy soil are only slightly converted decomposition products of plants. They differ chemically from the fossilized vegetable matter in that they contain a far higher content of cellulose and lignin.

When a mixture of peat and alkalies is stored in the air, rather complicated reactions take place. The effect of these reactions can be noticed in different ways. The viscosity of the mixture decreases, its color changes from gray or dark gray to black, and the temperature of the mixture rises, which shows that exothermic reactions are taking place.

For quite different purposes the reactions taking place in a lignin-alkali mixture have been studied. [1]It has been found that the lignin of peat and boggy soil is far more reactive than the lignin of wood. When alkali is added, a slow dispersion of lignin is obtained even at room temperature in the presence of air, and the lignin is converted into humus materials which are gradually decomposed into simpler compounds referred to as β-acids. There is no sharp distinction between lignin and humus compounds.

German investigators have separated soil organic matters into fractions, soluble and insoluble in acetyl bromide. The soluble fraction is referred to as lignin compounds and the insoluble fraction as humus compounds.

No formula can be given for the β-acids, as they comprise a plurality of organic compounds. They are characterized by a high content of carboxyl groups, and thereby that they can be precipitated by Al salts and Fe salts. Lubricating oils are also characterized by a high content of carboxyl groups.

It is therefore assumed that the water-reducing effect of this additive is mainly attributed to the carboxyl groups formed by the reactions.

In Figure 1 the lignin content, *i.e.*, the acetyl bromide soluble fraction of the NaOH/boggy soil mixture, is plotted against storing time. The mixture was composed of one part NaOH to three parts boggy soil, by weight, calculated on dry ash-free boggy soil. The storing temperature was 28 deg. C., and the concentration of lye in the mixture 0.8 N NaOH. It is seen that the lignin content decreases very rapidly during the first days, and then more and more slowly.

In Figure 2 the content of β-acids is plotted against the storing time of the mixture. The composition of the mixture and the storing conditions are as described for Figure 1.

[1]Mattson, Sante and Koutler-Andersson, Elisaveta—*The annals of the Agricultural College of Sweden*, Vol. II, 1943.

NaOH/boggy soil mixture of the composition described above was used as an additive to the slurry. The slurry was composed of hard sedimentary cement rock and silica sand ground to 94 percent less than 88 microns. The viscosity of the slurry was measured by a viscosimeter as illustrated in Figure 3. The time for the weight Q to fall from H to L depends on the revolving speed of the cylinder C, which in turn is a function of the viscosity of the slurry in which the cylinder is submerged. By this device relative values for the slurry viscosity can be found. Experiments have shown that the values found in this way furnish good indications as to the handling of the slurry in the plant, *i.e.*, the pumpability of the slurry and its ability to flow in chutes and pipes.

The results given in the following are based on the viscosity measured as described above. If for example, it is said that the additive reduces the water content of the slurry by 30 percent, this means that the viscosity of normal slurry without an additive is the same as the viscosity of slurry with an additive and with 30 percent less water.

In Figure 4 the water-reducing effect of the additive is plotted against the amount of additive used. The composition of the mixture was as described above: one part NaOH to three parts boggy soil by weight, calculated on dry ash-free boggy soil. The storing temperature was 28 deg. C., and the concentration of lye in the mixture O.8 N NaOH.

Practical experiments have shown that for these cement raw materials it is possible to come down to 20 percent slurry in water by increasing the addition sufficiently, compared with 33 percent water for normal slurry without additives. It should, however, be emphasized that such a low water content has never been used in practice, partly because the kilns have not been equipped for such a low water content, and partly because it would hardly pay to use such an excessive amount of additive. The lowest water content used in practice is 25 percent.

The following examples serve to explain the diagram. The water content of normal slurry was 33.0 percent. With 0.10 percent additive (point *a* on the curve the water reduction amounts to 39.0 percent. The corresponding water content in the slurry is calculated as follows:

Normal Slurry:

33.0 gm. water per 67 gm. raw meal

$$33.0\,\frac{100}{67.0} = 49.2$$ (49.2 gm. water per 100 gm. raw meal)

Slurry with additive and 39 percent less water:

$$49.2 \times \frac{100 \div 39.0}{100} = 30.0$$ (30.0 gm. water per 100 gm. raw meal)

$$\frac{30.0}{100 + 30.0} = 23.1$$ (23.1 gm. water per 76.9 gm. raw meal)

The slurry additive contains 23.1 percent water, compared with 33.0 percent for normal slurry.

The influence of the storing conditions—temperature and time—on the water-reducing effect of the NaOH/boggy soil mixture is illustrated in Figure 5.

It is seen that the effect increases with the temperature and storing time until the maximum is attained, beyond which the effect decreases when the storing is prolonged. For the lower temperature (curve C) the maximum effect is not reached, but if storing had been continued long enough, there would no doubt also be a maximum in this case. Apparently there always exists an optimum beyond which the reaction should not proceed.

This may be explained as follows: when the mixture is stored, the lignin substances are converted into humus compounds, which are decomposed into β-acids, rich in carboxyl groups. The β-acids are not

Fig. 1—Decrease in lignin content with storing time for an NaOH/boggy soil mixture—storing temperature 28 deg. C.

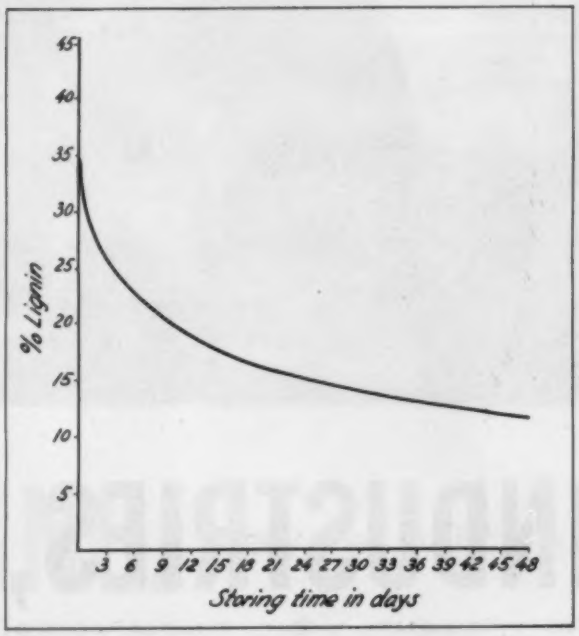
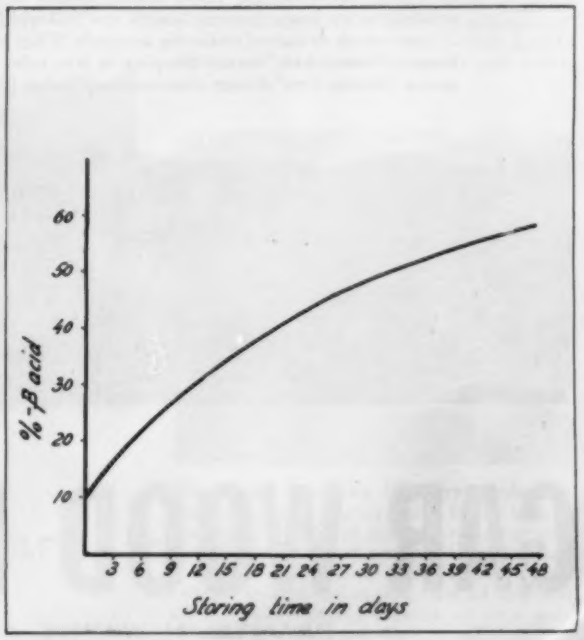


Fig. 2—Increase in content of β-acids with storing time for the NaOH/boggy soil mixture—storing temperature 28 deg. C.



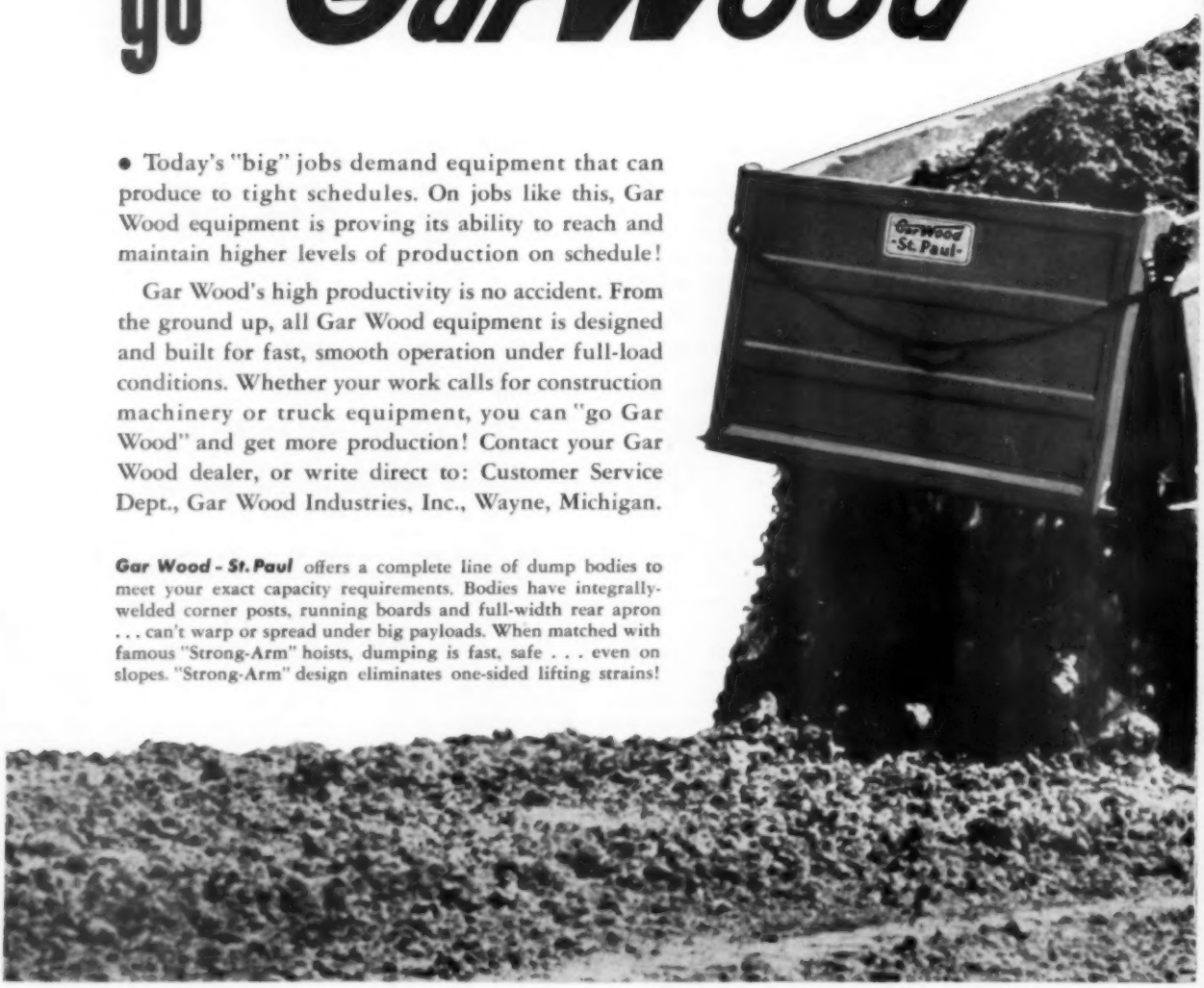
For the production you need

go GarWood

• Today's "big" jobs demand equipment that can produce to tight schedules. On jobs like this, Gar Wood equipment is proving its ability to reach and maintain higher levels of production on schedule!

Gar Wood's high productivity is no accident. From the ground up, all Gar Wood equipment is designed and built for fast, smooth operation under full-load conditions. Whether your work calls for construction machinery or truck equipment, you can "go Gar Wood" and get more production! Contact your Gar Wood dealer, or write direct to: Customer Service Dept., Gar Wood Industries, Inc., Wayne, Michigan.

Gar Wood - St. Paul offers a complete line of dump bodies to meet your exact capacity requirements. Bodies have integrally-welded corner posts, running boards and full-width rear apron . . . can't warp or spread under big payloads. When matched with famous "Strong-Arm" hoists, dumping is fast, safe . . . even on slopes. "Strong-Arm" design eliminates one-sided lifting strains!



GAR WOOD INDUSTRIES,

PLANTS IN WAYNE AND YPSILANTI, MICH.; FINDLAY, OHIO;

on today's big jobs

Gar Wood-Buckeye ditchers are real production machines. Efficient transmission of power insures maximum power at the digging wheel. And, this power is easier to control in a Buckeye! Hydraulic wheel hoist and hydraulic conveyor drive are instantly operated from seat by simple, one-hand controls. No complicated shifting, no need to stop digging wheel or crawlers.

Gar Wood ¾-yard excavators pay off in many "high-output" features. Positive, independent chain crowd on the 75B puts full engine power into every bite. Independent travel means operator can hoist or swing while moving. Dependable production is insured by heavy-duty conical-hook double rollers and flame-hardened gears and shafts.

Gar Wood-Buckeye Hi-Way Wideners dig clean, flat-bottomed ditch. Excellent uniformity of width and depth of cut eliminates later finegrading. Fast, accurate control makes it easy to hold desired grade. Conveyor discharges spoil to either side, clear of widened ditch. Owners report digging up to a mile of clean side ditch per day!

INC. Wayne, Michigan

MATTOON, Ill.; RICHMOND, CALIF.

however, stable compounds, as they gradually decompose in the presence of air into H_2O and CO_2. The last-mentioned compounds have no water-reducing effect. There seem to be two parallel counteractive processes: the formation of β-acids with a positive effect and the oxidation of β-acids into H_2O and CO_2 with a negative effect. No definite prescription can be given as to the conditions resulting in maximum effect of the mixture. Storage time until the maximum effect is attained will depend on the temperature, the concentration of lye, the admission of air, and further on the nature of the peat or boggy soil. It is therefore necessary to establish by experiments the conditions giving the optimum effect.

The additive also acts as a grinding aid. The results of some experiments carried out in the laboratory mill are given in Figures 6 and 7. The results given in Figure 7 are deduced from the curves in Figure 6. More than 15 percent grinding energy is saved when the additive is employed. Furthermore, it will be seen that the saving, figured in percent, is nearly independent of the fineness to which the materials are ground, within the range covered by this experiment, namely from 97 percent to 85 percent less than 88-micron.

In wet grinding it is a general rule that grinding energy decreases with decreasing water content of the slurry, other factors being equal. The reason for this may be that

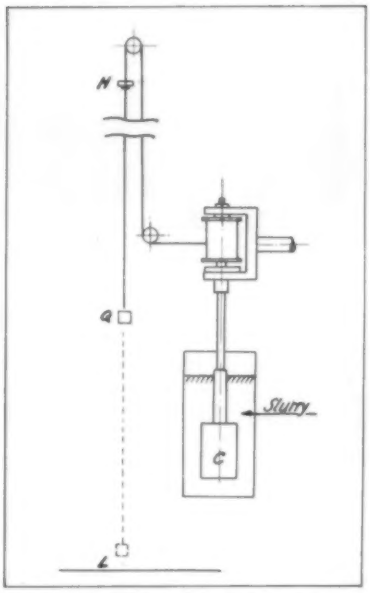


Fig. 3—A viscosimeter applied for the determination of slurry viscosity.

water acts as a brake, reducing the speed by which the grinding media hit the raw material particles. In this case the additive is also supposed to act as a dispersing agent, reducing the tendency to agglomeration, and also in this way facilitating grinding. The latter effect seems however, to be of less importance, as the saving of energy expressed in percent seems to be independent of the fineness within rather wide limits. If an eventual tendency to agglomeration had been reduced to any extent, it should be anticipated that the saving in grinding energy would show a pronounced increase with increasing fineness.

Results found in one cement plant cannot as a rule be applied for another plant. This is particularly the case in so far as slurry additives are concerned. A certain additive can have a very good effect in one plant, and a very poor one or none in another plant. It is not always easy to explain why this is so.

As to this particular additive, it is found that the effect depends very much on the raw materials utilized for cement production, and further on the nature of the peat or boggy soil. The additive is very sensitive to several ions. Even traces of SO_4 ions or Ca-ions cause a considerable reduction in the effect of the additive. If, for example, the slurry contains traces of sea-water, the effect of the additive will be poor. This is also the case if the raw materials are contaminated with traces of clinker. Plant technicians must perform their own experiments to find out whether a certain additive will be of any advantage in each particular case. Such experiments should be started in the laboratory. Laboratory results however, can give only an approximate indication as to what a method will involve on a large scale in the plant.

The conditions in a plant can never be exactly reproduced in the laboratory. In this case it has been found that the water-reducing effect of the additive is somewhat better in the plant than in the laboratory,

Fig. 4—Reduction in slurry water content with increasing quantity—figured on dry ash-free substances of percent of dry meal in slurry—of NaOH/boggy soil mixture added. Storing conditions for the mixture: 21 days at 28 deg. C.

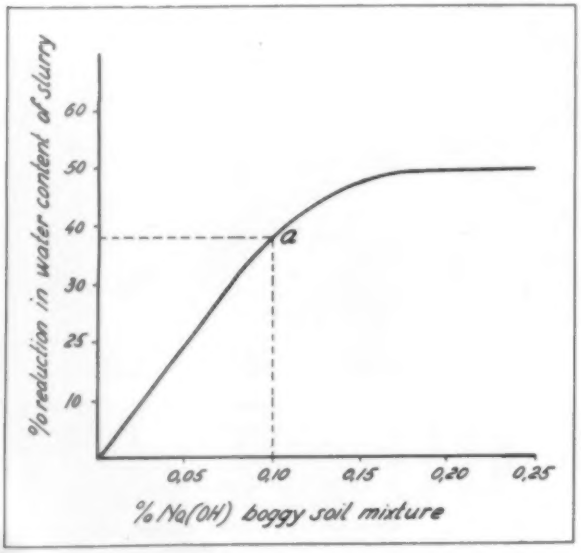
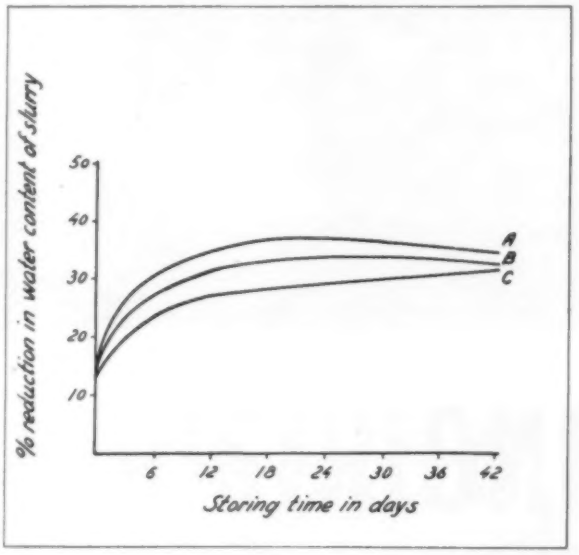


Fig. 5—Influence of storing conditions for the NaOH/boggy soil mixture on its water-reducing effect. Quantity mixture added: 0.02 gm. NaOH + 0.06 gm. boggy soil per 100 gm. dry meal in slurry. Storing temperatures: A=40 deg. C., B=28 deg. C., C=15 deg. C.



and its effect as a grinding aid is somewhat poorer in the plant than is found in the laboratory. It must be emphasized that these experiences refer to certain cement raw materials and a certain boggy soil.

For application of the method in the plant it has been found convenient to proceed as follows: peat (boggy soil) and NaOH are added to a silo, together with some water. The silo content is agitated by blowing air through pipes introduced in the mixture.

The mixture should contain as little water as possible in order to attain a high alkali concentration. If possible, the NaOH should be supplied to the silo in solid form. The temperature in the silo will increase because of the heat of solution of NaOH. This will accelerate the reaction taking place in the mixture. These reactions are exotherm, causing a further marked rise in the temperature of the mixture. Up to 5 deg. C. increase in the temperature of the mixture has been noted.

After a few weeks, when the maximum effect is attained, the mixture is transferred in batches from the storing silo into another silo, where additional water is supplied. The moment when the maximum effect is reached may be controlled to a certain extent by adjusting the quantity of air used for agitation. The mixture in the second silo has a good fluidity and can conveniently be conveyed and supplied to the slurry mills at a uniform measured rate.

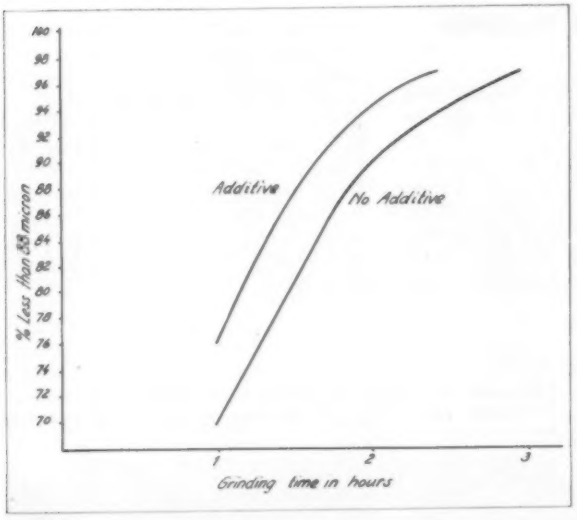
The chain system of the kilns has to be adjusted in accordance with the water content of the slurry and should as a rule be shorter when slurry additives are used. In the lower part of the chain section the materials are transformed into nodules. It is of great importance that the nodules are cohesive, so that they don't turn into powder to any considerable extent on their passage through the kiln. When the nodules are pulverized too much, an excessive dusting from the kiln will result, and material transport in the kiln will be rather irregular.

The cohesiveness of the nodules depends on various factors, such as the nature of the raw materials. It is known that some chemicals act as a glue to improve the cohesiveness of the nodules. This particular additive improves the cohesiveness of the nodules to a great extent. No laboratory experiments have been carried out to prove this. The effect is, however, clearly shown by the samples regularly drawn from the raw materials coming out of the chain sections of the kilns. It has also been proved indirectly by experiments carried out in one kiln.

The dust content in kiln exit gases has been determined. The purpose of this investigation was twofold—namely, to study how the additive affects the dust loss and further to study the effect of the kiln output on the dust loss. This kiln was provided with chains only, and no other heat exchange devices. The results of these investigations are given in Figure 8.

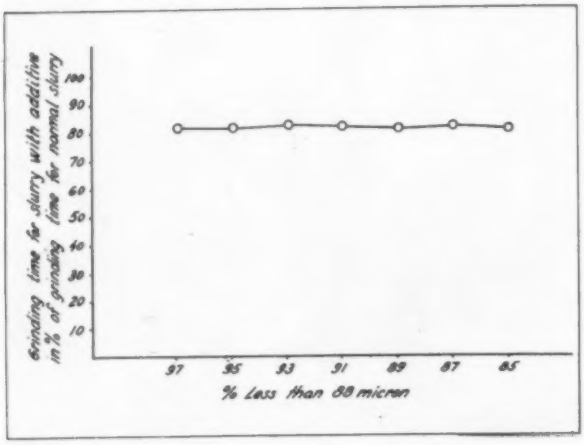
As will be seen, the dust loss with an additive in the slurry is less than half of the dust loss without an additive. The main reason for this is supposed to be the binding effects of the additive in the nodules. There is also another reason for the lower dust loss—namely, that the exit gas quantity is less when a slurry additive is utilized, provided that the kiln output is the same. There are fewer fuel gases because of lower fuel consumption and less water vapor in the gases because of lower water content in the slurry. Less exit gas means lower gas velocity and

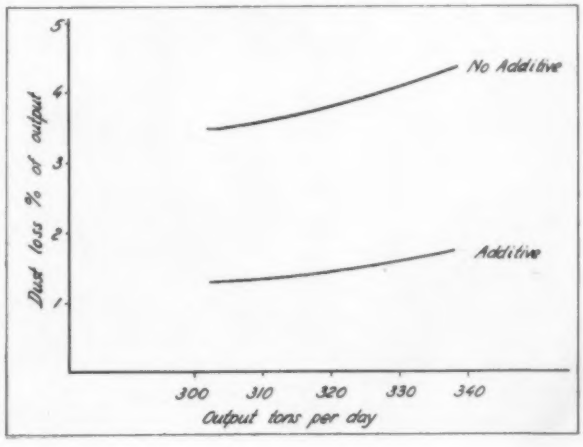
(Continued on page 89.)



Left: Fig. 6 — Effect of additive (NaOH/ boggy soil mixture) as grinding aid. Quantity added: 0.02 gm. NaOH + 0.06 gm. boggy soil to 100 gm. dry raw meal in slurry. Storing conditions for mixture: 21 days at 20 deg. C. Slurry water content: 32.5 percent without additive, 26.4 percent with additive.

Below, left: Fig. 7— Effect of additive as a grinding aid. The given results are based on the same experiments as in Fig. 6.





Below: Fig. 8—Dust loss from a cement kiln with and without an additive in the slurry.

Macon Quarries Company—

Another ON THE SPOT Report

JUST south of Macon, Ga., the Macon Quarries Company operates a quarry and plant which is said to be the southernmost granite operation in this country. From a very hard but somewhat broken deposit, stone is being produced which meets all Georgia highway specifications for Grade A stone, and all government specifications.

By WALTER E. TRAUFFER

This deposit was first opened on a small scale about 20 years ago. In 1950 the Ross Construction Company put in a 50-t.p.h. semi-portable plant to try out the deposit. Later, operating as the Macon Stone Company, a larger and more permanent plant was installed. In June, 1953, the Harrison Construction Company took over the operation, using the same name. Some new equipment was added, increasing capacity to about 800 tons daily. Then in March, 1955, this operation was taken over as a joint venture by Clement Brothers of Lenoir, N. C., large contractors and operators of crushed stone plants in several Southeastern states, together with the Asphalt Construction Company of Wadley, Ga.

The quarry drill, with its compressor (left), drilling for a new level. Below: This diesel crane, with its 5-ton drop ball, does secondary breakage.

Opposite page: The plant layout of Macon Quarries Company, near Macon, Ga., with the raw stockpile at the right. The crusher in the right foreground is no longer used.

The new owners were convinced that, considering the shortage of good aggregates in the area, a larger permanent plant was justified. They had an order for 300,000 tons of aggregates for the nearby Warner-Robins Air Base and also felt that enough permanent business would develop in this fast-growing area to crushed stone. It can produce over 200 t.p.h. when concentrating on the coarser sizes and can make over 250 t.p.h. of crusher run rock.

The deposit has a light overburden which varies in thickness and is removed by a bulldozer. There is also some soft rock which is removed. The stone, a granite gneiss, passes all specifications. Tests made by the Georgia State Geological Departments how a Los Angeles Rattler test of 18.54, a specific gravity of 2.69, absorption of 0.40, etc.

The original level at which the Rand Model 14970 Quarrymaster drill was used with a 4-in. Ingersoll-Rand Jackbit. This drill is mounted on a D8 Caterpillar tractor chassis. Air is supplied by an Ingersoll-Rand 600 portable compressor, and dust goes to an Aerotec Corporation collector.

The 20-ft. level was first opened by a bottom shot. Then shots of 100 to 300 holes arranged in semicircles with 10- by 14-ft. spacing were used to throw the stone into the space left by the bottom shot. Electric delay caps with 25-, 50-, 75-, and 100-ms.

Southernmost Crushed Granite Operation

three stages of crusher provide maximum flexibility

justify permanent operation. By the time this decision was reached, they had proved out the deposit sufficiently to justify going ahead with the reconstruction and expansion of the existing plant. Some of the equipment was retained but most of it was new or came from some of the company's other operations. The enlarged plant went into full operation late in 1953 with a capacity of 150 to 175 t.p.h. when producing a range of smaller sizes of quarry was opened by the former owners resulted in a face ranging up to 40 ft. in height. When Clement Bros. started working, they went down another 40 ft., giving a maximum face of 80 ft. It was found, however, that the 6-in. drill used could not be operated with maximum efficiency on the lower sections of the face. For this reason a 4-in. bit was used temporarily, and another level is being opened 20 ft. lower. When this is developed, the 6-in. bit will again be used with a face ranging up to 100 ft. high.

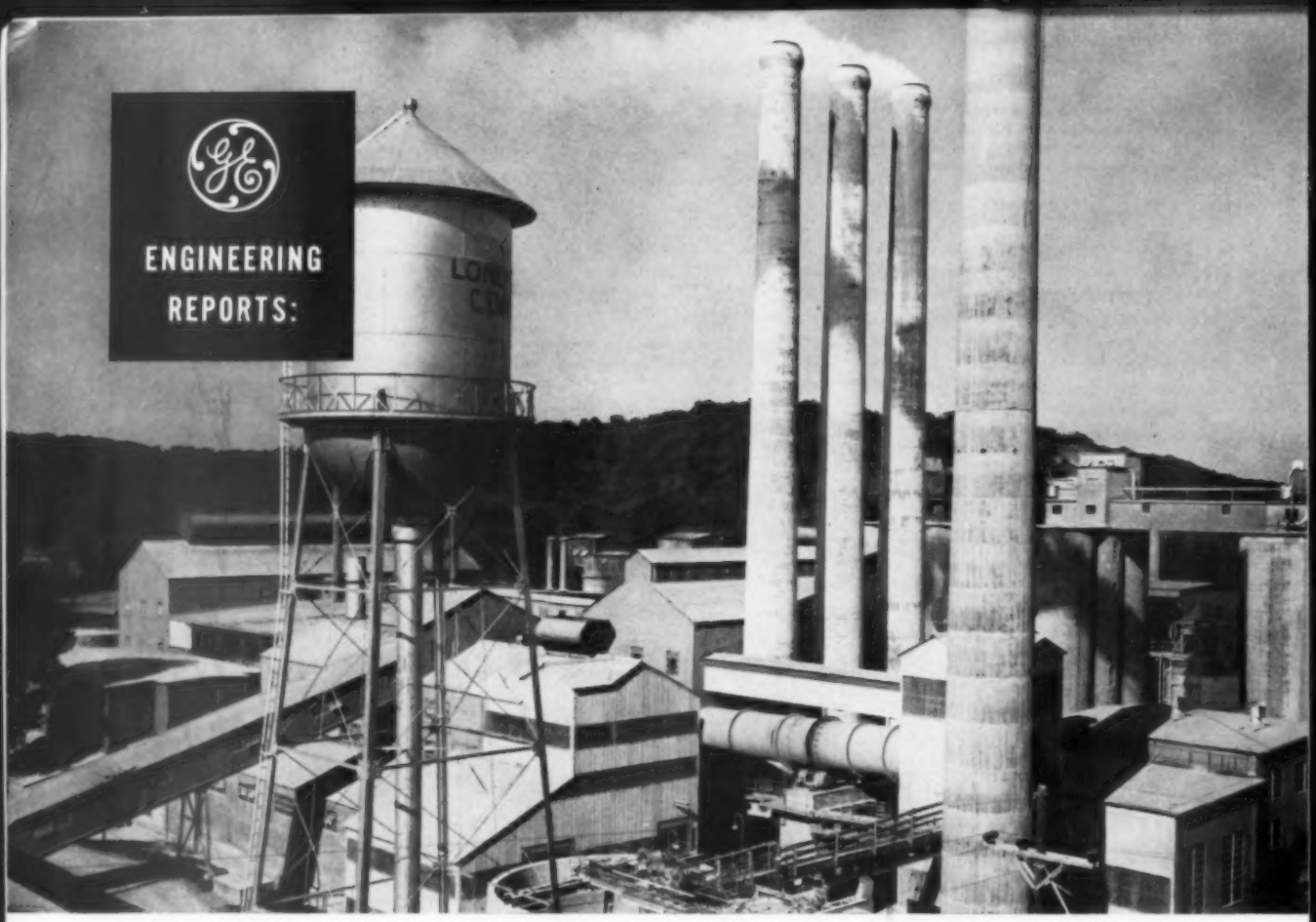
On the original level the Ingersoll-delays were used. The level was developed along this pattern, using DuPont 60 percent dynamite, 100 lb. to the hole. Holes were loaded to within 3 ft. of the top, and the electric delay caps were placed one-third of the way up from the bottom.

With the 100-ft. face and the 6-in. bit, a 12- by 20-ft. pattern is being used; and 50 to 60 hole shots are made in two or three rows. DuPont 60 percent dynamite is used in 5- by 24-in. (25 lb.) sticks. Ammonium

Drill bits being resharpened at the quarry by an air-operated grinding wheel.

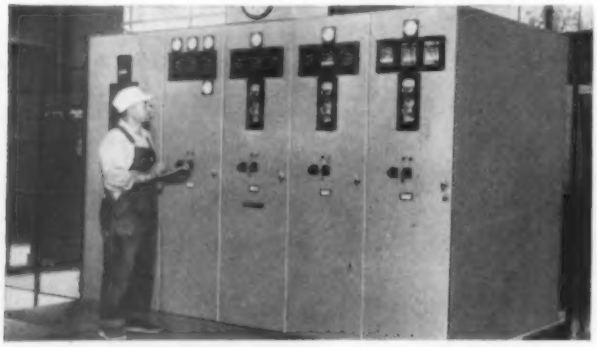
The 2½-cu. yd. diesel shovel loading stone from the top level into a 12-cu. yd. truck.

ENGINEERING REPORTS:

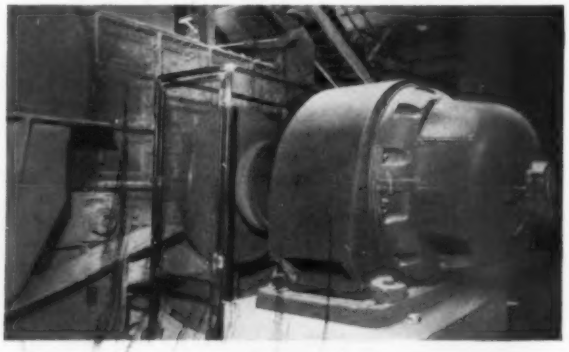


EXPANSION of Lone Star's Bonner Springs, Kans. wet-process plant has boosted cement output to 2,400,000 bbl/yr.

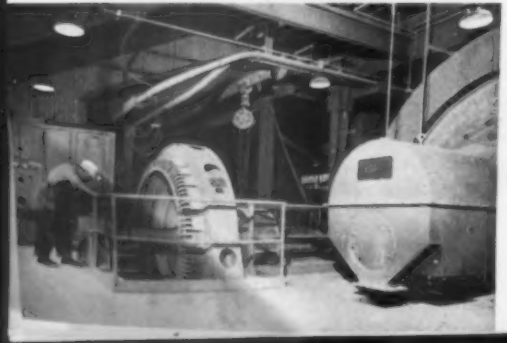
1 **PROTECTION** and switching for 2400-v circuits serving raw, finish, and kiln departments are provided by G-E vertical-lift, metal-clad switchgear with oilless Magne-blast circuit breakers rated 150,000-kva interrupting capacity.



2 **HEAVY-DUTY** service is performed by 300-hp wound-rotor motor driving hammer-mill for secondary crushing. Tri-Clad* design guards against physical damage, electrical breakdown, operating wear on tough duty operation.

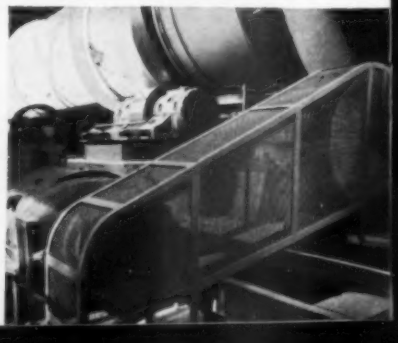


3 **HIGH-TORQUE** 600-hp synchronous motor powers raw mill. Limitamp* control and spotter (l.) start, protect motor, allow positioning of mill manholes.

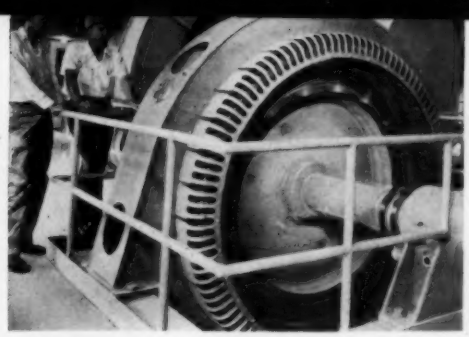


4 **DC POWER** for new kiln drive is provided by G-E motor-generator set (r.), controlled by Limitamp* high-voltage starter (ctr.). Substation (l.) feeds kiln auxiliaries.

5 **ACCURATE**, uniform control of kiln rotation is provided by General Electric 75/100-hp, adjustable-speed, direct-current motor.

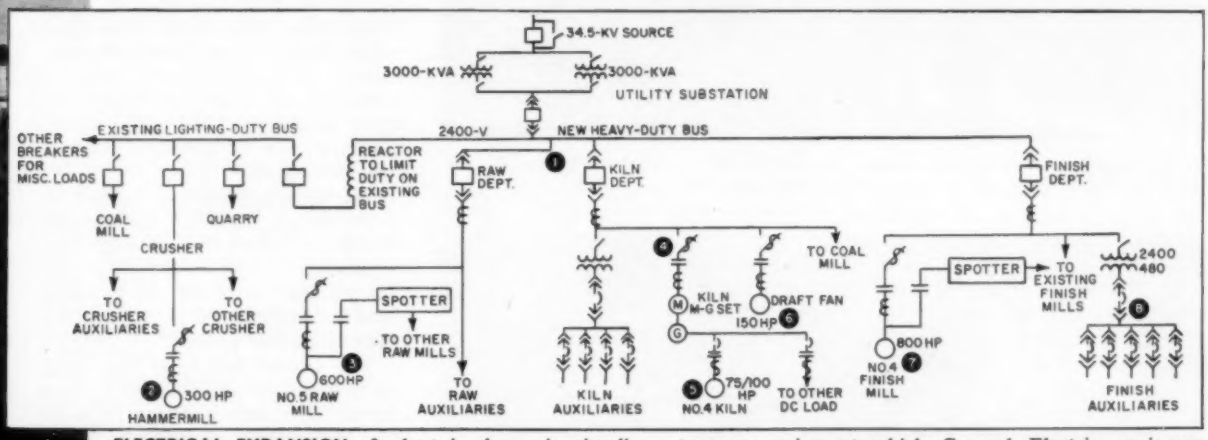


6 **STURDY** 150-hp General Electric Tri-Clad motor drives high-inertia kiln draft fan, gives highly-reliable service with almost no maintenance.



7 **TAILORED** to match speed-torque characteristics required with power system stiffness, 800-hp, 225-rpm synchronous motor drives new finish mill, helps assure reliable full-load starting.

8 **COMPACT** load-center substation serves finish auxiliaries, reduces feeder length.



ELECTRICAL EXPANSION of plant is shown in simplified one-line diagram. Numbers keyed to photos refer to new equipment which General Electric engineers helped co-ordinate into plant's new expanded system.

General Electric system helps Lone Star Cement expand Kansas plant's capacity by 50%

New system design at Bonner Springs fully utilized existing switchgear to cut expansion costs, minimize disruption of production

As part of a comprehensive $58-million-dollar company-wide expansion program to meet growing demand, Lone Star Cement Corp. recently completed enlargement of its Bonner Springs, Kansas, wet-process plant. Capacity was increased 50 per cent to 2,400,000 barrels annually. In expanding the electrical system of this plant to handle the increased load, General Electric equipment was chosen.

Working closely with Lone Star engineers and their consultants, General Electric application engineers, familiar with cement-plant electrical needs, closely matched new as well as existing mill-motor loads to power system requirements—in some cases shifting existing high-current loads to the heavy-duty system. They tailored auxiliary drives as well into the new electrical system. Existing light-duty switchgear was economically utilized by co-ordinating it with the new system. This saved cost of replacing it and allowed plant production to continue smoothly during most of expansion. Result: a fully integrated system embodying both the new and existing systems perfectly matched to provide reliability and flexibility at low over-all cost. Or, in the words of John Lape, plant supt., ". . . selection of the right equipment for the right job without exception."

In expanding or modernizing your cement or rock products plant, utilize the engineering services available to you by contacting your G-E Apparatus Sales Office early in planning stages. Meanwhile, write for Bulletin GEA-5984 on cement plant electrical modernization. General Electric Co., Sect. 658-18, Schenectady 5, N. Y.

*Reg. trade-mark of General Electric Co.

Engineered Electrical Systems for the Rock Products Industry

GENERAL ELECTRIC

Trucks dump the rock to an apron feeder over a 42- by 48-in. primary jaw crusher. The conveyor at the left discharges the rock to the primary surge pile.

The scalping and secondary crushing station, with the diesel engine which drives the cone crusher (foreground).

This view of tertiary crushing station shows the gyratory crusher and its diesel engine (foreground).

nitrate explosive has been used along with the dynamite with good results. Shots are detonated by a DuPont 1000-v. blasting machine with Eveready batteries.

Using the 4-in. bit, a 20-ft. hole was drilled in 35 min. With the 6-in. bit, 20 ft. of hole is drilled in an hour. After 400 hours bits are resharpened with an Ingersoll-Rand air-operated grinding wheel in the quarry.

No secondary shooting is being done. All oversize stone is broken with a 5-ton dropball operated by a 1½-cu. yd. Link-Belt Speeder diesel crane. This has a 50-ft. boom from which the ball is dropped the maximum of 30 ft. The quarry drains to a sump in one corner and is kept dry by a Jaeger portable high-pressure pump driven by a 6-cyl. Chrysler gasoline engine.

The stone is loaded at the face by a 2½-cu. yd. Link-Belt K580 shovel which is powered by a D17000 Caterpillar diesel engine. Two 12-cu. yd. Euclid heavy-duty end-dump trucks haul the stone 1,000 ft., a part of it upgrade, to the plant.

The trucks discharge their loads on a 42-in. by 14-ft. Pioneer apron feeder. This unit is driven by a 20-hp. motor and can feed steadily or intermittently, as desired, to the 42- by 48-in. Pioneer jaw primary crusher. This is V-belt driven by a Caterpillar 364 diesel engine. The minus 6-in. product of the crusher is carried on a 36-in. by 120-ft. belt conveyor to the primary surge pile—having a live storage capacity of over 1,500 tons reclaimable through a single opening in the tunnel below.

A Syntron vibrating feeder discharges this minus 6-in. stone on a 30-in. by 120-ft. belt conveyor to the scalping and secondary crushing station. The 5- by 14-ft. Seco 2-deck scalping screen has 4-in. perforated plate on its top deck and 2-in. wire cloth on the bottom. The material over both decks is chuted to the No. 4½ Symons standard cone secondary crusher, which is driven by a Caterpillar 364 diesel engine. This reduces to 2-in. minus, and the product is returned on a 30-in. belt conveyor to the main belt ahead of the screen.

Minus 2-in. material through the bottom deck of the scalping screen is carried on a 30-in. by 100-ft. belt conveyor to the tertiary crushing station. There it is discharged on a second 5- by 14-ft. Seco 2-deck screen, this one equipped with 1½- and 1-in. wire cloth on the top and bottom decks, respectively. The top deck is used only to lighten the load on the bottom deck. The 1- to 2-in. rock off both decks goes to the 3-ft.

Traylor TY gyratory tertiary crusher, which is driven by a Caterpillar D1600 diesel engine. This is set at 1-in. maximum opening, and its product is carried on a short belt conveyor back to the conveyor ahead of the screen.

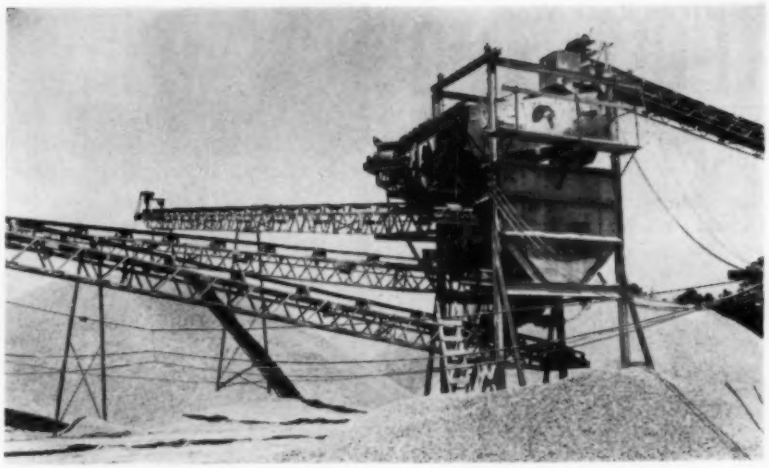
Minus 1-in. stone through the bottom deck of this screen is taken on a 30-in. by 120-ft. belt conveyor to the first sizing station. It is discharged onto a 5- by 14-ft. Seco 3-deck screen with 1-, ¾-, and ⅜-in. wire cloth. The three coarse sizes produced are carried on individual 18-in. by 75-ft. conveyors to stockpiles.

Minus ⅜-in. material through the bottom deck of this screen is carried on a 24-in. by 80-ft. belt conveyor to the final screening tower, to be discharged on a 4- by 10-ft. Cedarapids 2-deck screen. Only one deck is being used, and this has ¼-in. wire cloth. The plus ¼-in. product is carried on a 24-in. by 80-ft. inclined conveyor to a stockpile. The dust through this screen is chuted into a bin, from which it is stockpiled by trucks. The tunnel feeders are controlled from this point.

The four crushed stone stockpiles are over a single 400-ft. reclaiming tunnel. Syntron feeders at openings under the piles feed single sizes or any desired blend onto the 24-in. by 390-ft. reclaiming belt conveyor. At the end of the tunnel a 24-in. by 100-ft. belt conveyor at right angles feeds to a 150-ton truck-loading bin. Trucks are loaded from this bin for delivery or for stockpiling. A Lorain truck-mounted shovel is used for loading to and from stockpiles.

All shipments are now being made by truck, but a railroad siding will be put in as soon as possible. The company owns no delivery trucks. Contractors do their own trucking, and small users buy from haulers. All shipments are weighed on a 50-ton Howe truck scale with a Weightograph attachment and a platform long enough for any truck-trailer used in this area.

This company is prepared to generate power at its widespread operations which are often in areas far from any power lines. At this location the existing power line was too small to serve the entire enlarged plant; so a portable diesel generating set, a Caterpillar D1600, was installed to supply power for two screens, six conveyors, and two feeders. The three crushers are driven by individual diesel engines. Purchased power is used elsewhere, including the quarry. The diesel engines are all equipped with Hastings Manufacturing Company oil filters.



The first sizing station, where three coarse sizes are stockpiled by boom conveyors.

All belt conveyors are driven through Dodge speed reducers and V-belts by 10-, 15-, and 20-hp. motors. The belt conveyors were supplied by E. F. Marsh and the Continental Gin Company, and most of the conveyor belting is Goodyear.

The company's local office is at the plant, which is on Georgia Industrial Home Road about six miles west of downtown Macon. Roy Foster Jr. is general manager, Guy F. Jenkins is office manager, James L. Clement is plant superintendent, and E. K. Parker is quarry superintendent.

Reducing Water Content

(From page 83)

consequently lower dust-carrying capacity of the gases.

As already mentioned, the additive described is, like most other additives, very sensitive to Ca-ions. As a result of the dust circulation in the kiln, the slurry in the chain system will be contaminated with calcined dust, which transmits Ca-ions to the slurry. This will have a great effect on the viscosity of the slurry in the cool region of the kiln. The dust content in the exit gases will vary because of fluctuations in kiln operation. The amount of dust precipitated in the chain system will therefore vary, causing variations in slurry viscosity.

This variation in viscosity is particularly pronounced when an additive sensitive to dust is used. If the kiln is provided with a simple chain system, this variation will, as a rule, have no pronounced effect on the material transport in the kiln. If, however, the kiln is provided with other heat exchange and dust-collecting devices, the material transport in the kiln may be more irregular, due to greater variations in viscosity caused by the additive. In such case it is easier to obtain a uniform material transport, and therefore a more regular kiln operation, if no slurry additive is used.

It is generally believed that a reduction of slurry water content by additives will cause an increase in exit gas temperature. However, this is not always the case. Experience has shown that the exit gas temperature is approximately the same when the kiln is operated without additive and 33 percent water in the slurry as with additive and 27 percent water in the slurry, provided that the kiln output is the same in both cases. High water content in the slurry will tend to increase heat transmission in the cool region of the kiln and thus tend to lower the exit gas temperature. Additives may, on the other hand, improve the nodulizing properties of the slurry and thus bring about a lower dust concentration in the kiln gases and better heat transmission in the kiln. The reduction in the quantity of kiln gases when an additive is used also tends to lower exit gas temperature.

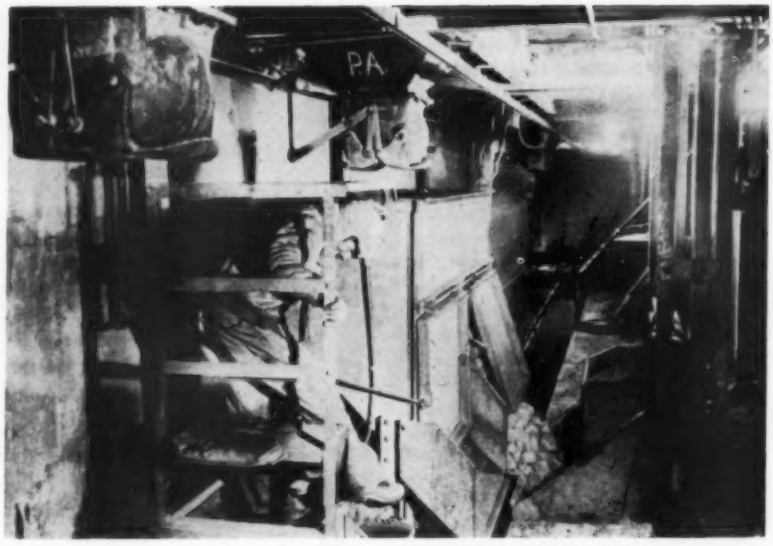
It is not always easy to decide whether the use of an additive pays or not, as many factors have to be taken into consideration. It is usual simply to compare the saving in fuel resulting from less water in the slurry with the total cost of the additive. This is not, however, sufficient, because use of an additive does not mean merely less water to evaporate. It also changes the nature of the slurry and consequently affects slurry grinding, slurry handling, and kiln operation.

American Rock Wool

(From page 72)

rials from the cars to storage bins.

American Rock Wool Corporation operates eight plants, located at the following points: South Plainfield, N. J.; Wabash, Ind. (2); Birmingham, Ala.; Torrance, Calif.; Red Wing, Minn.; Cleveland, Ohio; and Tacoma, Wash. Officers of the corporation include James R. Addington, president; W. T. Tillotson, vice-president in charge of manufacturing; C. L. Neumeister, vice-president; G. D. Sudlow, vice-president in charge of sales; and W. H. Owens, chief engineer. At South Plainfield Carl Setterberg is manager and Hubert Miller, assistant manager.



The 2-compartment transfer car receives loads from the weigh-hopper and delivers them to the skip-hoist buckets.

New Case-Terra Trac Equipment Put Through Paces at Preview

At a "Tractorama" preview held on Dec. 10 at Churubusco, Ind., more than 50 representatives of the trade and business press witnessed demonstrations of new industrial wheel tractors, TerraTrac crawler units, and heavy earthmoving equipment now in production by the newly merged firms of J. I. Case and American Tractor.

Following a tour of the recently expanded Churubusco plant (which now covers about 250,000 sq. ft.) located near Ft. Wayne, Ind., Marc Rojtman, executive vice-president and general manager of the merged organization, noted that the new Case-TerraTrac industrial line includes three separate equipment packages, for which distribution will be made through the J. I. Case farm dealers, industrial dealers, and heavy construction equipment distributors.

The complete line was described as covering 20 gasoline and diesel-powered tractors that range from 40 to 80 hp. in rubber-tired units, and up to 100 hp. in crawler models. Over 50 combinations of matching backhoes, loaders, bulldozers, angledozers, forklifts, and other attachments are available.

During the exhibition of various units, the visitors witnessed a demonstration of technical features which company officials describe as being "firsts" in incorporation as standard items on the 800 and 1000 crawlers (80 and 100 hp.). These included a new counter-rotating Terramatic power-shifting transmission which provides independent control of each track (for both speed and direction), torque converter drive, "non-stop" from forward to reverse speeds, hydraulic controls for either foot or hand operation, and power brakes.

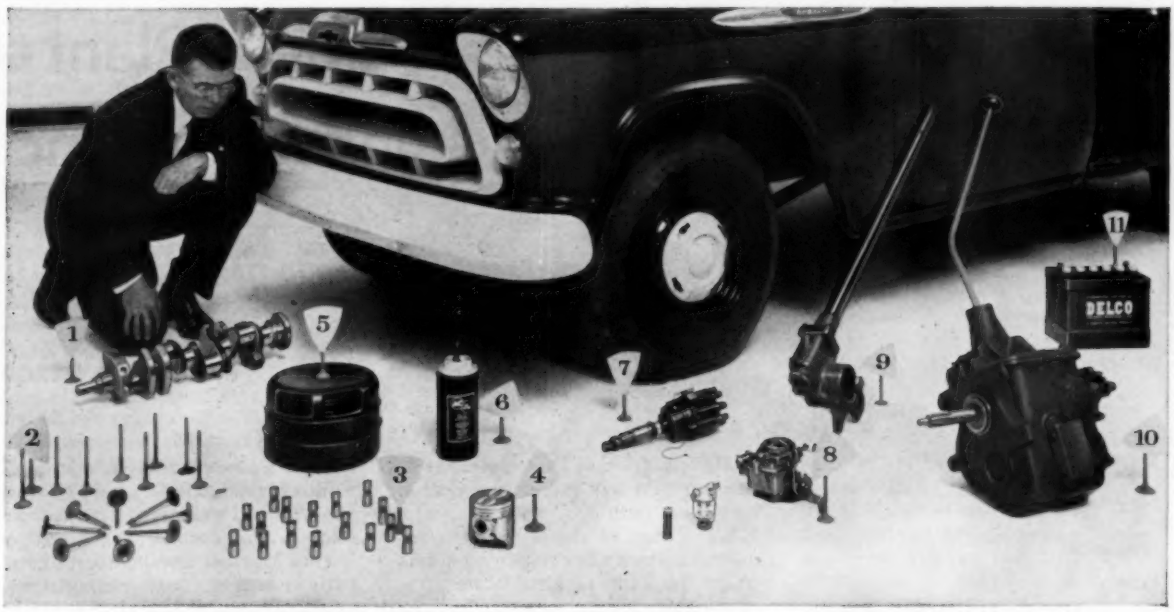
Two other features, for which patent rights have been requested, according to company heads, are a torsion bar track suspension and an automatic lower track wheel lubrication system. A graphic demonstration of the former was provided for the visitors when one track of a crawler unit was run up on a 12-in. obstacle while the other track remained flat on the ground. Loader buckets and dozer blades mounted on the demonstrating tractors were seen to remain perfectly level. In providing full equalization of load, as well as cushioning action, this feature is said to enable the tractor to deliver full power and traction on both tracks when operating in rough terrain.

With the new two-point centralized lubricating system for the lower track wheels, a pair of sealed reservoirs (one on each side) extends the full length of the track frame and feed track wheels through individual lines. The manufacturer claims that the centralized system takes only about ten minutes once a month to lubricate all lower track wheels, due to a constant head of semi-fluid grease on each wheel.

The new Case-TerraTrac crawlers are available with a full line of hydraulically-controlled equipment, including 1½- and 2-cu. yd. tractor-shovels, straight, and angle dozer blades, and pushbutton starting. As with all other units made by the firm, according to Mr. Rojtman, both tractors and attachments will be sold and serviced as complete units—engineered and built by one firm.

Turning in its own tracks, this crawler tractor has one track operating in reverse while the other is driving forward.

LOW HAULING COSTS COME RIGHT FROM THE "HEART" OF A '57 CHEVY



Many of the things that make a Chevrolet truck more economical to run are seldom seen by the owner. They're hidden features, deep in the truck's design. Here are just a few of them, to prove a Chevy's engineered better and built better for bigger savings!

1. *Forged steel crankshaft*—It's extra sturdy, precision machined and balanced, the foundation for dependable, long-lasting power!

2. *Aldipped exhaust valves**—Special aluminum treatment on valve surface protects valves against pitting; engine wears less, costs you less to run!

3. *Hydraulic valve lifters*—for longer valve life in V8's, fewer engine repair jobs.

4. *Chevy V8 piston*—Thanks to *short-stroke* V8 engine design, this piston travels a shorter distance, wears less. Short-stroke efficiency aids fuel economy, too!

5. *Oil-bath air cleaner—standard* on all Chevrolet truck engines for added protection against dust and foreign matter that shorten engine life.

6. *High-capacity oil filters***—They remove dirt particles from Chevy engine oil to cut engine wear and maintenance.

7. *Easy-adjust distributor points*—You can adjust this new Chevy V8 distributor *with the engine running*; it's added insurance against costly down time.

8. *Multiple fuel filters*—For *clean* fuel, all Chevy engines have fuel filters in the carburetor and fuel tank; in addition, V8's provide an *extra* filter at the carburetor.

9. *Ball-Gear steering mechanism*—Inside this steering gear scores of polished steel balls virtually eliminate friction. Less friction means less wear, less maintenance!

10. *Rugged manual transmission*—Synchro-Mesh design eliminates the need for double-clutching, reduces costly wear. Gears are shot-peened for extra strength.

11. *12-volt battery*—provides sure starting, good ignition, long battery life in all Chevrolet trucks.

And there are many more! See your Chevrolet dealer for all the dollar-saving facts. . . . Chevrolet Division of General Motors, Detroit 2, Michigan.

**On Thriftmaster 6, Trademaster V8.*
***Standard on V8's and Jobmaster, optional on Thriftmaster 6.*

1957 CHEVROLET TASK·FORCE TRUCKS

PROVED ON THE ALCAN HIGHWAY . . . CHAMPS OF EVERY WEIGHT CLASS! CHEVROLET

Growing demand, mineral evaluation result in

Indiana's Only Expanded Shale Plant--Midwest Aggregates, Inc.

By BUREN C. HEROD

Another ON THE SPOT Report

DEVELOPMENT of products and of marketing areas for those products has been a dominant force in the economic growth of this country throughout its history. A present-day example of these factors at work in modern industry can be found in the case of a new producer in the lightweight aggregates industry, Midwest Aggregates, Inc., of Brooklyn, Ind. Just two years ago this young firm initiated operations with the only expanded-shale plant in the state of Indiana. Evidence of its almost immediate success is underlined by the fact that the original facility, with an annual capacity of about 80,000 cu. yd. will soon undergo expansion that will more than double its present output.

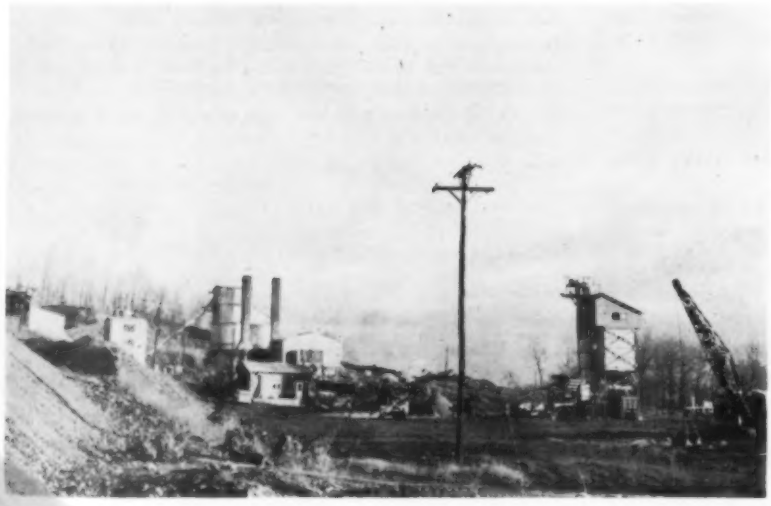
Since most of the lightweight aggregates which the company markets under the name of Midlite are presently sold in the central Indiana area, where it is estimated about 25 percent of block produced are lightweight units, the expanded capacity proposed will permit Midwest to meet the demand for high-quality lightweight aggregates throughout Indiana, as well as partial coverage of important markets in adjoining states.

Prior to the company's organization, an intensive study was made to determine the most favorable location for a new plant from the standpoint of availability of suitable raw material and nearness to major consuming markets. A check list of essential factors and points for comparison was used to evaluate systematically the location possibilities that were under consideration. In arriving at the final decision, the firm received valuable assistance from the members of the Indiana Geological Survey.

When the search narrowed to the present plant location, extensive tests—including laboratory, small-scale, and full commercial—were conducted to make certain that the shale had favorable bloating characteristics for the production of a superior quality of expanded-shale aggregate. These tests and subsequent operating experience have confirmed the fact that the shale is ideally suited for this purpose.

From the standpoint of potential market, the location is as nearly perfect as could be hoped for. It is only 22 miles southwest of Indianapolis, near the geographical center of the state. Importantly too, the plant is adjacent to the Pennsylvania Railroad and State Route 67, which assures adequate transportation facilities.

After the plant location decision was made, a tract containing ap-



An overall view of the Midwest Aggregates plant site. At the far left are the raw shale storage shed and primary crusher installation. The center group includes the kiln feed bins, kilns, cooler, and stacker. At the right is the final crushing and screening plant.

proximately 125 acres was leased. This was followed by the erection of a 2-kiln plant which went into operation late in 1954. The complete plant was designed by McNally-Pittsburg Manufacturing Corporation of Pittsburg, Kans.

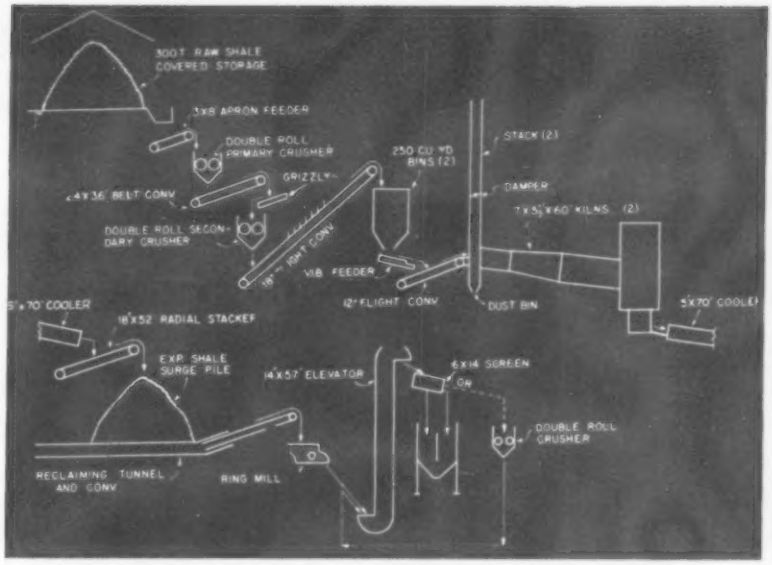
A local brick producing firm loads shale from a pit immediately adjacent to the Midwest Aggregates plant. Because of the short haul, one truck can adequately take care of the operation's present shale requirements.

A shed was erected over the receiving hopper to provide covered storage for about 500 tons of pit run shale. Material dumped directly into the hopper is transferred on a 3- by 8-ft. apron feeder to the primary breaker — an Eagle Senior double-roll crusher driven by a 100-hp. motor. The primary crusher product is transferred at 150 f.p.m. on a 24-in. by 36-ft. belt conveyor to the secondary crusher building, where it is discharged over a 1¾-in. slotted bar grizzly.

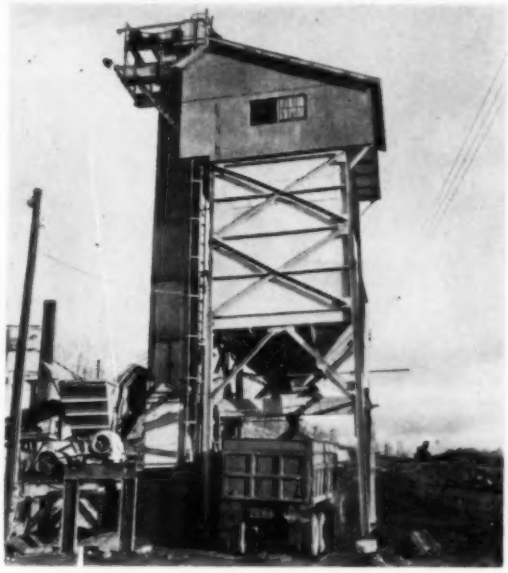
Oversize material is chuted to a McNally-Pittsburg double roll crusher. This secondary crusher product, and the grizzly throughs are received on an 18-in. flight conveyor and raised 50 ft. at the rate of 100 f.p.m., to the top of a pair of 250-cu. yd. capacity kiln feed bins. Belt conveyor and flight conveyor drive is furnished by Falk Motoreducers of 5 and 15 hp., respectively.

The flight conveyor discharges into a chute from which, by means of a sliding gate, the raw shale may be fed into either bin as desired. A Jeffrey-Traylor vibratory feeder below each bin transfers the shale to th proper one of two 14-in. flight conveyors for transport to the individual kiln feed pipes. The two feed bins, as well as the balance of steel work in the raw shale section of the plant, were fabricated by McNally-Pittsburg.

Each kiln is a 7- by 5½- by 60-ft. unit equipped at the feed end with a 4- by 4-ft. square stack, 45 ft. high. Installed with a pitch of ¾ in. per foot, the kilns revolve at 6/10 r.p.m. and are driven by 5- and 10-hp. motors. Each is lined with A. P. Greene refractories — Empire Dry Press 6-in. liner for 30 ft. from the feed end, and Clipper Dry Press 6-in. liner for the next 30 ft. To date the company has not had to make any liner replacement. The liners are retained with 2- by 2-in. steel bar rings

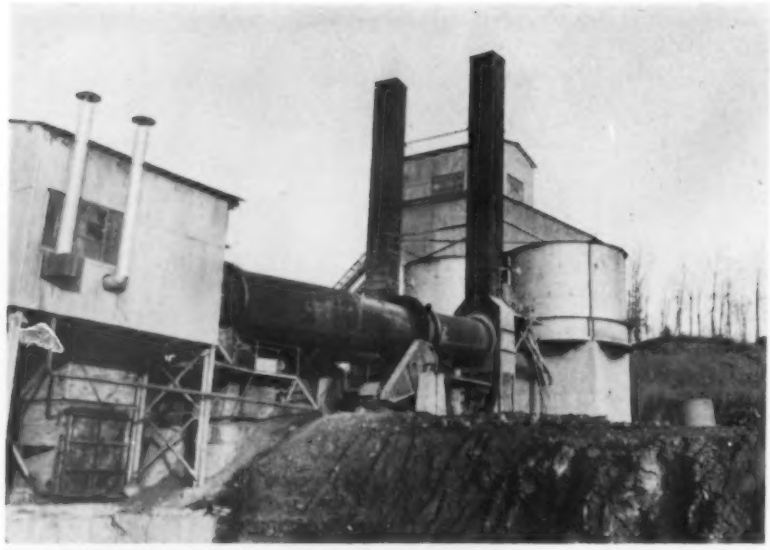


Flow diagram of Midwest Aggregates' expanded shale operations.

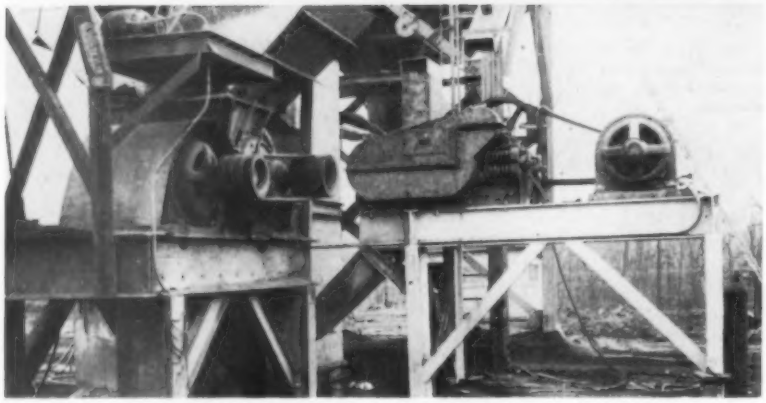


A view of the finished product and truck loading bins. The finished aggregates are separated on a screen above the bins.

From the secondary crusher building (left) the shale is raised by a flight conveyor to the top of the two kiln feed bins (right).



A side view of the kiln installation, showing one of the twin 60-ft. units, and the two stacks. At the lower left is the clinker pit, from which the expanded shale is chuted to the cooler.



Final crushing is accomplished by a ringmill (left), which is fed from the clinker stockpile, and the double roll crusher (right center), which reduces oversize material from the finishing screen.

installed about 30 ft. from the feed end and about 2 ft. from the kiln nose.

Each kiln is equipped with two Hauck burners, one of which is used in normal operation with natural gas. If necessary to use the standby oil system for which a 20,000-gal. oil storage was installed, both burners on each kiln are brought into play. Kiln temperatures of approximately 2,200 deg. F. are maintained. Primary combustion air is supplied by a pair of 800 c.f.m. Spencer blowers, while secondary air is provided via natural draft that passes through the cooler prior to entering the kilns.

Following its feed into each kiln, the shale undergoes a retention time of about 50 min. Both kilns discharge into a common clinker pit, from which the material is chuted to a 5- by 70-ft. cooler. This unit, driven by a 10-hp. motor, revolves at the rate of 2.3 r.p.m. An interesting and unusual feature of this cooler is its 5-in. thick reinforced lightweight concrete lining, which was poured for a 15-ft. distance at the feed end. The next 10 ft. of the cooler is presently lined with brick, but it will also be surfaced with lightweight concrete as the brick wears out. The remaining 45 ft. of the cooler is fitted with lifters.

Expanded shale discharged from

(Continued on page 110)

Right: Clinker discharge from the cooler (center) is stockpiled by a 52-ft. radial stacker, and subsequently reclaimed for transfer to final crushing and screening (upper left).

Below: The shed to the left of the raw shale truck hopper provides covered storage for about 300 tons of pit-run material.

BEAR IN THE BORROW PIT

THIS D9 LOADS SCRAPERS WITH 25 HEAPED YARDS IN 45 SECONDS

Phil Dudenhoefer, grade superintendent, knows from production charts that the D9 pusher loads more yards faster, at lower cost.

Working near Eau Claire, Wis., on a highway relocation job, L. G. Arnold, Inc., cut cycle times and boosted yardage with a Caterpillar D9 Tractor push-loading a CAT* DW21 and No. 470 Lowbowl Scraper.

On a round-trip haul of 3 miles they averaged 100 cu. yd. per hour—4 heaped loads of 25 cu. yd. each. Loading time on overburden, with the mighty D9 pushing, was an average of only 45 seconds.

Phil Dudenhoefer, grade superintendent for L. G. Arnold, Inc., says, "I've got both feet right in the dirt, where I record output and performance of every machine. With the D9 as pusher, the DW21-No. 470 unit is outproducing by far any other equipment on the job."

That experience has been shared by hundreds of owners, as more and more D9 Tractors have gone to work in borrow pits or on stripping operations. For fast loading you simply can't beat the D9, with its 320 HP at the flywheel and maximum drawbar pull of 98,000 pounds. Power-boosted controls and excellent visibility make this giant one of the easiest of all tractors to operate. It's available either with torque converter or direct drive with oil clutch. Maintenance is easy, too. And it's ruggedly built to lick the world's toughest jobs.

Your Caterpillar Dealer can show you actual performance records of higher production at lower cost per yard. He'll give you a demonstration right on the job. And he stands behind the long life of every machine with reliable service and parts you can trust.

Caterpillar Tractor Co., Peoria, Illinois, U. S. A.

CATERPILLAR*

*Caterpillar and Cat are Registered Trademarks of Caterpillar Tractor Co.

HEAVY-DUTY EARTHMOVERS FOR THE HARD WORK

Engineering Opportunities In the Cement Industry

By J. M. WOLFE

Chief Engineer,
Missouri Portland Cement Company

ENVIRONMENT FOR ENGINEERING

THE cement industry can use more engineers and technicians. There are more elaborate machines and accessories in the cement-making process than envisioned even a few years ago. To handle them and their controls in every aspect requires technical training and experience of a specialized character.

The complex technology which characterizes modern cement manufacturing operations and all other extractive, processing, and manufacturing industries has created new places and opportunities for engineers and technicians.

As in other competitive processing industries, the management is under pressure to review and appraise its facilities, to make improvements constantly, to decrease costs, and to plan ahead; all of these important problems involve technical matters which can be approached competently by people trained in the use of the "engineering method," which uses facts to solve problems.

Today's production operations and maintenance schedules and procedures must be directed and guided by technical supervisory personnel. Research, development, and engineering departments can also use engineers to great advantage.

Opportunities will probably arise in years to come in the field of management engineering as the manufacturing and general engineering departments attain a higher state of organization. Industrial engineering practices, which are concerned with the proper combination of men, materials, and money to accomplish the best results, are beginning to be represented in the work of management groups.

There is a more receptive ambient in the cement industry today than ever before toward the utilization of engineering in all aspects. This may derive in part from the greater importance and stability that the industry has acquired in the last 10 or 15 years. In the last 5 years the promising long-range prospects for the industry became evident.

Some companies now have under way comprehensive medium and long-range improvement programs. Such plans can best be advanced by engineering staffs whose major responsibilities are planning and construction, men who are free of the needs and pressures peculiar to routine production, who are competent to deal with contractors, suppliers, and consulting engineers, and capable of participating in co-operative intra-company relations.

It is recognized as a good practice in some companies to carry extra people in the engineering department, so that management can draw upon this group for technical help when openings occur in other departments. The broad training received in engineering work, the handling of diversified problems, the opportunities to examine and analyze activities throughout the enterprise all promote the self-development of individuals which can fit them for more responsibility.

The engineering work situation and formal job relationships are different from one company to another for a variety of reasons Foremost among these are the size of the company and the policies and attitude of its management.

In some companies the engineering department has been placed on a separate and equal footing with operations to which, in general, it was formerly subordinate. The work of a planning department should not be determined by the daily exigencies of productional activities. This ought to be the responsibility of a maintenance group with its own technical staff, functioning under the control of the plant manager.

Larger companies are generally more highly organized internally, but this is not to say that the role of engineering or engineering groups is as well-delineated or is as important as in some smaller companies.

WORK AND RESPONSIBILITIES

The four major technical functions most closely allied to actual cement making are the following:

1. Operations, employing the machinery and facilities to manufacture the product.

2. Maintenance, the right hand of operations, which is charged with keeping the equipment and facilities in first class condition.

3. Research, including product research and product standards, which also investigates and establishes performance values of the productional units, examines and develops new methods of processing, and explores ways and means to improve quality in all stages of the process.

4. Engineering (including planning and construction), which designs new facilities, makes studies and cost estimates, appraises ideas and suggestions, and develops improvements in the plant for greater output and higher efficiency.

A discussion of some functions, activities, and requirements related to these four groups follows.

Operations—In the field of operations a sound, alert organization, with a well-trained staff of technical specialists, capable of handling and directing people, is most important.

Production planning and scheduling resting on sound knowledge of equipment capability and condition are highly important in the operational phases of a plant. Variable factors such as fuels, raw materials, weather, market demands, and machinery breakdowns, must be studied and evaluated.

This brief discussion of operations in a cement plant shows how people trained in industrial, mechanical, and electrical engineering can contribute their knowledge and experience.

Maintenance—In this paper, the individual grouping of maintenance, which is inseparably linked to operations, is intended to focus attention on this vital activity in an age of automation in the processing industries. Automatic systems, such as modern cement grinding circuits, are designed to run by themselves, with the minimum of attention. These systems will run well, assuming the designers are proficient, if the equip-

ment and controls are kept in first-class condition.

This is the responsibility of maintenance, and in a modern cement plant this field is challenging. For topmen it demands engineers and technicians who are highly trained in this type of work. These men must be able to understand and handle apparatus with which rapid analyses of machinery troubles can be made. Valuable qualities in a maintenance supervisor are resourcefulness, ability to meet and overcome difficult technical problems, and the ability to work under duress.

Under present-day production conditions, regular inspections and routine maintenance must be done under schedules which have been programmed into long production campaigns. The repair work must be planned to proceed efficiently to take full advantage of the shutdown period.

Unexpected mechanical and electrical faults occur in the best regulated plants. These must be handled on an emergency basis. Such occasions demand aggressive response, technical knowledge, and ingenuity on the part of the responsible personnel. The maintenance engineer with the proper attitude and a liking for this kind of work will find it highly satisfying as a work experience and as an environment to develop his talents and ability.

The increasing complexity of machines, devices, and controls used in cement plants emphasizes the need for technical specialists on maintenance staffs.

Research—The research department can be assigned to investigate all activities allied to the making of cement: raw materials, flow sheets for new facilities, product quality, product use, new products development, process control, calibration and standardization of machine performance; and other related activities.

The research staff can profitably undertake many more and diverse activities than pure chemical research. Research serves as a liaison between engineering and operations, as the above list of duties suggests. The research group can have few more useful assignments than that of transforming unproven equipment into a production unit of known characteristics, during the initial startup. Research functions should encompass process and operations.

The work of the research department involves chemical engineering, as we have seen, and chemistry. Persons with training in these fields mainly staff the research department. They work in close association with the chemical processing staff of the operating department.

Those in research department, perhaps more than others in the plant, should have knowledge in such related fields as extractive metallurgy, wherein crushing, grinding, classification, thickening, filtering, drying, and roasting are practiced. They should be familiar with the processes of concentrating ores and minerals. Moreover, they should know how to perform metallurgical, chemical, and combustion calculations as encountered in smelting, metallurgy, furnace work, and heat recuperation. It seems desirable that key cement plant personnel be aware of processes in other industries analogous to the unit steps in cement making.

Engineering—A well balanced engineering department in a cement company can utilize skills and abilities in mechanical, electrical, civil, and mining engineering. Experience in the cement, chemical, mining, and construction industries will be very helpful to serve as a background for executing the work.

Experience in plant layout, structural design, cement plant design, machinery design, field engineering, construction, and machinery erection and assembly will prove to be valuable assets in meeting the requirements of the various jobs encountered.

Members of the engineering department make studies and plans for new projects and improvements and, in this respect, exercise an industrial engineering function. This department, perhaps more than its colleague departments, maintains contacts with the suppliers of equipment and materials which it must appraise and select. It also writes specifications for machinery facilities and services.

The work environment in a properly constituted engineering department is an excellent training ground for developing broad thinking and attitudes on problems. Such abilities are prerequisites for assuming duties of wider scope and responsibility.

Investigation of problems and improvements enable these engineers to travel throughout the entire works, a situation which develops an understanding of the facilities, their purposes, and their relationships with other parts of the plant.

The work of the engineering department, if it is assigned its proper place and responsibilities by an enlightened and progressive management, affects the other departments perhaps more extensively and more permanently than any other. Thus, its members must be keenly aware of the probable effects of their actions on other branches of the organization and on the overall long-term results to the company.

FUTURE POSITION OF ENGINEERING

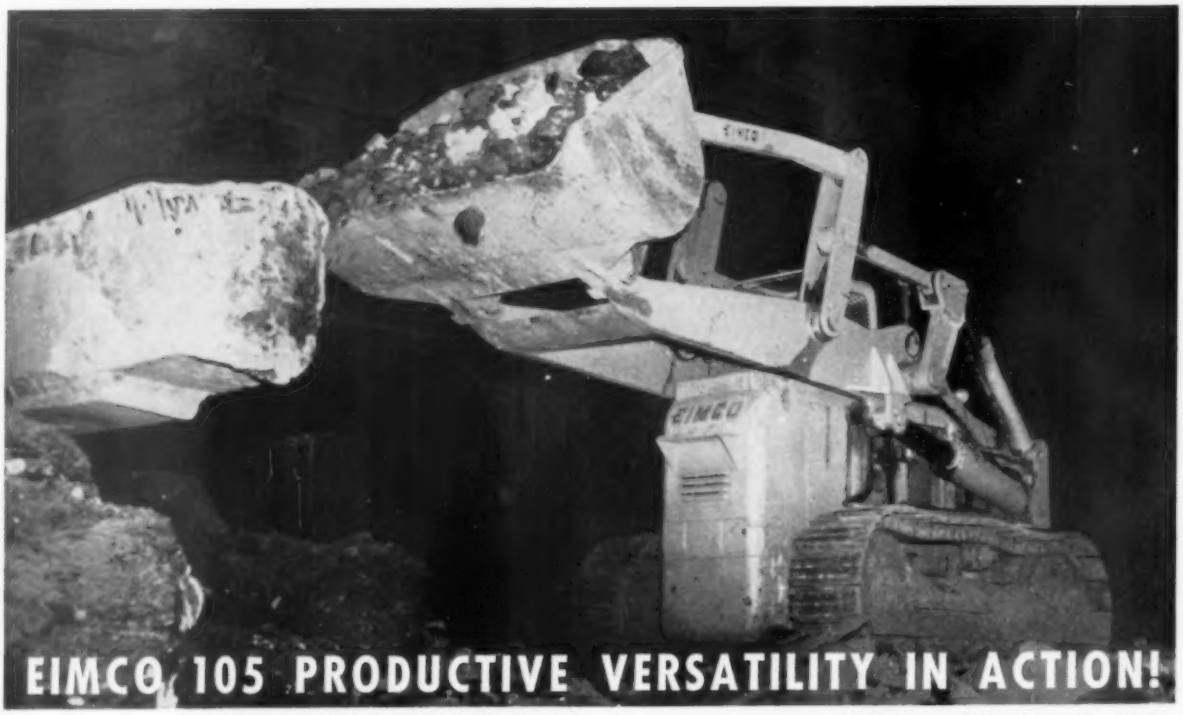
Some of the preceding is similar to recently published material on the development of the engineer, from the beginning of a career. In these discussions concentration was largely on simple technical matters along a well-defined path and then on later stages, at which increasingly diverse activities and interests must be handled successfully. In this article the writer has tried to associate some of these ideas with engineering situations in the cement industry.

Also, an attempt has been made here to specify some qualifications for persons in the several divisions of the organization where engineering knowledge is necessary for technical competence and individual growth. In short, this paper strives to define what kind of engineering help is needed and what these persons should know, expressed in terms of what they will do under the steadily advancing technology of cement manufacture.

Reports in engineering journals and in various trade and industry journals about the need for more engineers and technicians for many years to come applies also to the cement industry. A need for suitably qualified people prevails in that considerable segment of the industry which has recognized and is fulfilling the obligation to customers, stockholders, and employees alike for the constant improvement of facilities, methods, and products. This condition is likely to persist as long as manufacturing and trade continue to be strong.

New flow sheets, methods, facilities, controls, and numerous other features are appearing in almost every cement plant. The technology is becoming more involved as processing refinements to meet product specifications and to lower production costs are introduced.

An effective organization to cope with such problems includes staffs of technical specialists who must be recruited and trained to sustain tomorrow's operations. The concerted efforts of several technical skills is often necessary to establish conditions that will permit equipment to be productive while the troubles that beset the operations are being sought and eliminated.



EIMCO 105 PRODUCTIVE VERSATILITY IN ACTION!

NEW! FRONT END LOADER

Here's the latest addition to the 105 wide-range family of rugged earth-moving tools.

In loading applications where physical and haulage conditions make its use more practical . . . here is a front end loading mechanism that gives you extra strength for the most severe job.

Large, double-acting hydraulic boom cylinders provide ample power to hoist loads weighing up to 15,000 lbs. to full height. Boom and bucket controls may be operated simultaneously.

To fill the big (2½ yard) bucket, this loader develops 25,000 lbs. digging force at the lip. 40,000 lb. pry-out force and 40 degree bucket tip-back at ground level gets full bucket loads, minimizes spillage. It carries loads close and low for maximum stability.

It operates in 9′ 6″ headroom . . . discharges into haulage units up to 14′.

Exclusive features of the hydraulic system provide an extra margin of protection against mechanical delays.

Bulldozer

Dozer blade attachments are designed to make full use of the extra-production features of the 105. In broad usages such as cutting haul roads for logging outfits . . . pioneering in shale and hard rock . . . clearing fire paths for the Forest Service . . . the Eimco 105 Bulldozer has proven its high-capacity ability the world over.

All attachments are Eimco-built to standard SAE mounting dimensions for the basic 105 Tractor. This means extra performance from every attachment through independent track maneuverability . . . up front visibility . . . power shift operating ease . . . balanced design for maximum stability . . . quality built for dependable on-the-job service.

Excavating Loader

Where digging is extra tough . . . and haulage provisions can be adopted to take full advantage of overhead discharge — the time-proven 105 Excavating-Loader will give you **bonus** loading power at the bucket lip and **bonus** dumping speed to accelerate the entire cycle.

Unique contour of the rugged rocker arms . . . bucket design and smooth, steady flow of engine power transmitted to the bucket lip through the torque converter gets 39,200 lbs. of digging force right where you want it . . . in the pile. Awkward maneuvering to get into dumping position is eliminated in ideal overhead discharge applications.

THE EIMCO CORPORATION

Salt Lake City, Utah—U.S.A. • Export Offices: Eimco Bldg., 52 South St., New York City

New York, N. Y. Chicago, Ill. San Francisco, Calif. El Paso, Tex. Birmingham, Ala. Duluth, Minn. Kellogg, Ida. Pittsburgh, Pa. Seattle, Wash.
Cleveland, Ohio Houston, Tex. London, England Gateshead, England Paris, France Milan, Italy Johannesburg, South Africa

B-239

More Information, Please

Use the prepaid postcard to get this literature or additional details about new equipment and products reported elsewhere in this issue.

THE RUST-OLEUM 1957 COATINGS MANUAL, now available from the *Rust-Oleum Corporation,* contains information and recommendations which enable the user to determine quickly and accurately the specific coatings needed to protect practically any rustable metal surface. Full color application photos and over 100 actual color chips are included. (1)

MORFLEX COUPLINGS are featured in a 24-page catalog released by the *Morse Chain Company.* Complete dimensions are given on standard, double, and radial type couplings, with additional data on coupling driveshafts. Torsional deflection charts and instructions for use are included. (2)

A NEW FLAT BELT BAG CONVEYOR which coordinates bag packing and sewing into a single one-man operation is described and illustrated in Bulletin No. 0465 now offered by the *Richardson Scale Company.* Features and motor drives available are discussed, and a dimensional drawing is included. (3)

HEAT ENCLOSURE METHODS is the title of a colorfully illustrated booklet published by the *M. H. Detrick Company.* The book reviews some of the problems of heat enclosure and shows how each has been overcome by the development of new materials or constructions. (4)

BULLETIN BU-58, released by the *Keystone Lubricating Company,* describes the application of Keystone grease and oil to 24 different types of heavy equipment, including equipment used in earthmoving, strip mining, quarrying, excavating, dredging, etc., and contains photos illustrating these applications. Specifications are included. (5)

ELECTRIC FAN CLUTCHES for internal combustion engines are discussed in a technical report issued by the *Warner Electric Brake and Clutch Company.* Applications, operation, typical designs, control methods, and test results are featured. A preprint, "Automatic Fan Control," is included in the report. (6)

RADIATION PYROMETRY is covered in Technical Publication EN 33B, *Temperature Measurements with Rayotubes,* available from the *Leeds & Northrup Company.* The history of radiation pyrometry, principles and types of L&N Rayotube pyrometers, optical systems used, and typical applications are explained. (7)

CONVEYOR BELT MAINTENANCE is the topic of an 8-page brochure issued by *Conveyor Belt Service, Inc.* Typical examples of belt wear and damage are illustrated, and service for the repair and rehabilitation of all types of conveyor and transmission belting is discussed. (8)

PORTABLE, STANDBY, AND SOLE POWER ELECTRIC PLANTS, self-priming centrifugal and diaphragm pumps, and Super Hole-A-Matic earth-boring machines are included in the *Gen-A-Matic Corporation's* complete-line catalog which contains specifications diagrams, and photos of all Gen-A-Matic equipment. (9)

FIRST CLASS
PERMIT NO. 44
CHICAGO, ILL.

BUSINESS REPLY CARD

No Postage Stamp Necessary if mailed in the United States

THREE CENTS POSTAGE WILL BE PAID BY

Pit and Quarry Publications

431 South Dearborn Street

CHICAGO 5, ILL., U.S.A.

FEBRUARY, 1957

Please send more information on circled items described in this issue

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70	71	72	73	74	75					

In addition I would like information on:

_____

Name_____ Title_____

Company_____

Address_____

City_____ Zone_____ State_____

More Information, Please

Use the prepaid postcard to get this literature or additional details about new equipment and products reported elsewhere in this issue.

AIR COMPRESSORS with capacities ranging from 1/3 to 20 hp. are covered in a new 20-page catalog published by the *Kellogg Division, American Brake Shoe Company*. The booklet gives complete specifications on single- and two-stage models, portable models, tanks, pumps, and accessories. **(10)**

A NEW ARC WELDING MACHINE ACCESSORY CATALOG is now available from the *Air Reduction Sales Company*. Specifications for each machine, from ampere ratings to outside dimensions, are given. **(11)**

VACU-FLO TUBING SYSTEMS, designed for the efficient handling of air and bulk materials are featured in Bulletin No. V-157, available from *H-P Products, Inc.* Specifications for tubings and fittings are given in addition to features, diagrams, and application photos. **(12)**

SAND-MAKING AND CLASSIFYING BY AUTOMATION is explained in Bulletin No. 900 published by *Meckum Engineering, Inc.* Fundamental principles of operation are included and a typical plant layout is shown. Tonnage and size specification sheets are also available. **(13)**

MALSBARY HIGH PRESSURE COMBINATION CLEANERS for use on various types of equipment, such as tractors, trucks, etc., are pictured in a folder released by the *Malsbary Manufacturing Company*. Malsbary HPC cleaners combine pumped hydraulic and thermal pressure to deliver a 300- to 400-lb. cleaning blast at extremely high temperatures. **(14)**

BULLETIN 5702, prepared by the *Macwhyte Company,* gives Whyte Strand wire rope recommendations for several types of equipment. A discussion of rope construction is included. Sketches illustrate the principal types of clamshell buckets and their rope reeving. **(15)**

THE ANTHONY CONTINUOUS MIXER is described and illustrated in literature published by the manufacturer, *The Gas Machinery Company*. Applications, features, specifications are included. **(16)**

THE GEARY-JENNINGS AUTOMATIC SAMPLER, manufactured by *The Galigher Company,* is discussed in Bulletin S-056. Construction features, application photos, and diagrams supplement the descriptive data on the different types of samplers. **(17)**

CLEVELAND WORM GEAR SPEED REDUCERS are pictured in several installations in a brochure published by the *Cleveland Worm & Gear Company*. **(18)**

MODEL LW-30 REAR DUMP TRUCK, newly introduced by the *LeTourneau-Westinghouse Company,* is pictured and described in literature offered by the firm. The LW-30, with a capacity of 30 tons or 20 cu. yd. struck, is said to combine the speed of a small truck with the capacity of a heavy-duty truck. **(19)**

SHAFER SELF-ALIGNING ROLLER BEARINGS are featured in a condensed catalog published by the *Chain Belt Company*. Specifications, sizes, load capacity charts, diagrams, and photos are included. **(20)**

FEBRUARY, 1957

Please send more information on circled items described in this issue

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70	71	72	73	74	75					

In addition I would like information on:

_____

Name _____ **Title** _____

Company _____

Address _____

City _____ **Zone** _____ **State** _____

FIRST CLASS
PERMIT NO. 44
CHICAGO, ILL.

BUSINESS REPLY CARD

No Postage Stamp Necessary if mailed in the United States

THREE CENTS POSTAGE WILL BE PAID BY

Pit and Quarry Publications

431 South Dearborn Street

CHICAGO 5, ILL., U.S.A.

Independent Survey Proves...

WAGNER TRACTOR LOADERS OUTPERFORM ALL OTHERS!

In a recently completed survey, conducted by an independent research organization among tractor loader owners and operators, Wagner Tractor Loaders were preferred for performance.

Here, in the words of actual owners and operators, was overwhelming proof that for reliability and versatility you just can't beat Wagner Tractor Loaders and attachments.

Other reasons given for the purchase of Wagner Tractor Equipment were rugged construction, more maneuverability, fewer maintenance problems. All of which add up to one thing — if you've got a big, tough, bulk material handling job to do, see your Wagner dealer for a demonstration. He'll show you a plus value — an array of quickly-interchangeable Wagner attachments that transform a tractor into the most versatile equipment around the yard or quarry.

wagner
TRACTOR EQUIPMENT

WAGNER IRON WORKS, 1905 South 1st St., Milwaukee 1, Wis. | Dept. 68

Please send me complete details about Wagner Tractor Equipment.

NAME .....

COMPANY .....

ADDRESS .....

CITY ..... STATE .....

"WAGNER BUILT" MEANS "BETTER BUILT" FOR OVER 105 YEARS

Another ON THE SPOT Report

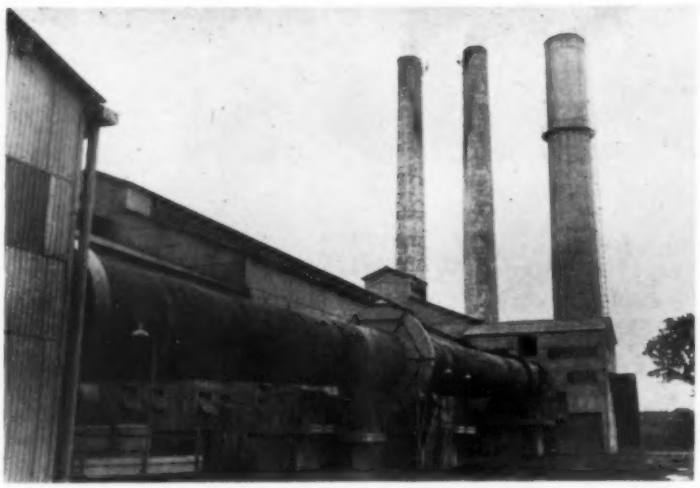
NATIONAL'S New Slurry Preheater

kiln equipment cuts heat and dust losses to minimum

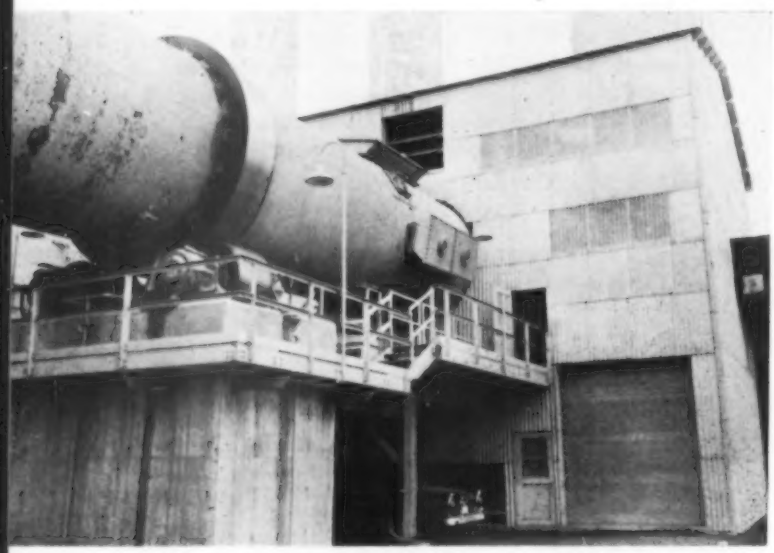
A new type of slurry preheater has been operating since June, 1956, at the Brodhead, Pa., plant of the National Portland Cement Company. It is believed to be the first installation of this type in this country. The main purpose of the new equipment is to reduce all heat losses to the minimum, particularly in the heat in gases leaving the kiln. This item is by far the largest factor governing the total heat economy. The preheater has also had the effect of reducing substantially the amount of dust in the kiln gases.

By ROY L. PECK

Dust In connection with the preheater installation, a new Unax kiln was added to the two kilns previously in use. This unit has a total length of 341 ft., composed of three sections of varying diameters. The first section (at the burning zone end) is 128 ft. long and has a diameter of 10 ft. 3 in. This is followed by a mid-section 94 ft. long, having a diameter of 9 ft. 3 in. The last zone is 119 ft. long, with a diameter of 10 ft. 9 in. The kiln is designed to operate with a heat consumption of 900,000 B.t.u. per barrel, at a capacity of 2,000 bbl. daily. The actual performance of the equipment since its start has fully confirmed the design figures.



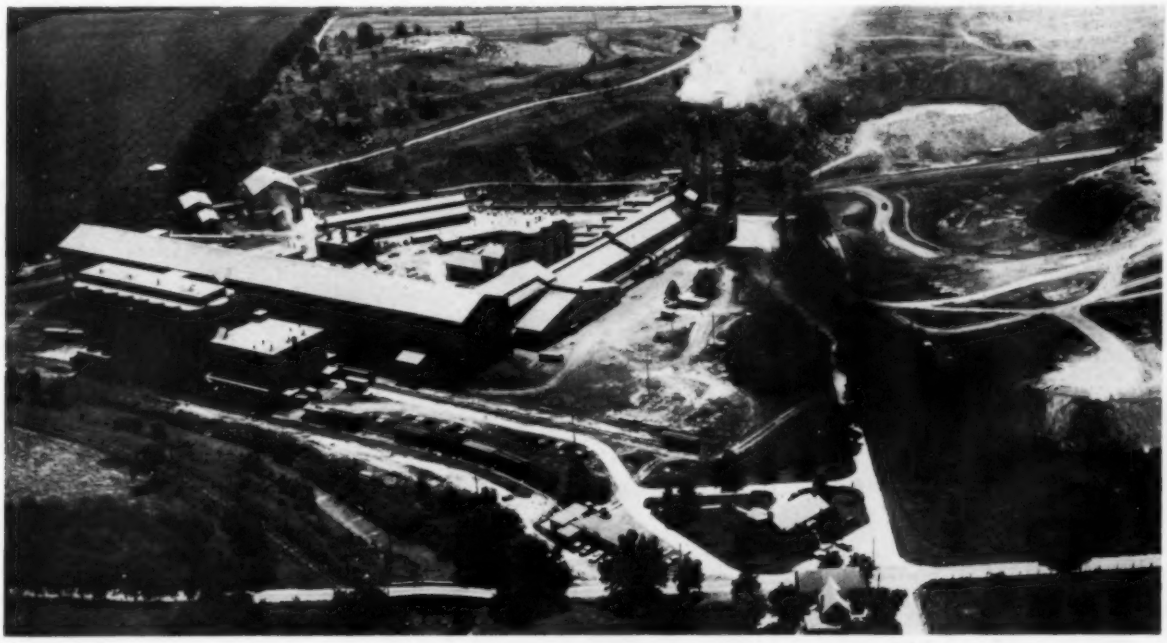
Left: A closeup of the preheater installation on the new 341-ft. kiln. This last zone of the kiln is 119 ft. long, and 10 ft. 9 in. in diameter.



Right: The new kiln and stack recently put into operation at Brodhead. It is planned to house the new kiln in a manner similar to that employed in enclosing the adjacent two kilns.

The heat losses which are common to all rotary kiln processes are caused by the following four items: (1) heat in gases leaving the kiln; (2) heat in dust leaving the kiln; (3) heat in clinker leaving the cooler; and (4) radiation from the kiln shell.

In order to obtain the above very low heat consumption, it was necessary to consider each of these losses separately in the over-all design of the kiln and heater.



An air view of the Brodhead, Pa., plant of the National Portland Cement Company.

Heat in Gases The gases leaving the kiln contain not only the products of combustion but also the CO_2 originating from the calcination of the limestone. The lower the temperature of these gases, naturally, the lower the heat losses. In order to obtain a low temperature of these gases, it is necessary to insure the maximum heat transfer between the gases and the materials in the kiln.

In the Brodhead plant installation this maximum heat transfer was accomplished by equipping the new kiln with an F. L. Smidth patented slurry preheater at the feed end, followed by a chain system 36 ft. long, in turn followed by a four-compartment heat exchanger system 21 ft. long. The slurry preheater consists essentially of eight longitudinal compartments separated by grates. Every other compartment contains heat-transfer elements having large surfaces, which tumble as the kiln rotates. The slurry passes through these four compartments, countercurrent to the kiln gases. Due to the large surface of the slurry-covered heat transfer elements, intimate contact is established, resulting in a very efficient heat transfer and dust absorption. In this way the slurry is preheated to a temperature below the boiling point of water.

The preheater is so dimensioned that little evaporation of water takes place, but the water percentage is reduced, primarily due to absorption of dust from the gases. As previously stated, the main purpose of the preheater is to obtain efficient preheating of the slurry prior to its entering the chain system.

From the preheater the slurry passes through a chain system. Here the greatest part of the water in the slurry is evaporated by close contact between the slurry and the kiln gases, which are drawn through the system by means of a fan. The partly dried slurry at this point rolls itself into nodules by the rotation of the kiln. The chain system is so dimensioned that the nodules will contain only about 8 to 10 percent water when they leave the chain system.

This chain system consists of ¾-in. figure 8 type chain links with large surface. It is suspended in loops from a new type of fastener in accordance with the new "Valby" design developed by F. L. Smidth & Company. This figure 8 type of chain is well known in the cement industry, and has been frequently described in Pit & Quarry articles.

The heat exchanger system consists of radial sections of heat resistant steel casting elements dividing the cross-sectional area of the kiln into four compartments. These castings are attached to the shell of the kiln by means of shoes of heat-resistant materials, and they are equipped with ribs on each side, providing ample conveying capacity. Flights at the inlet and outlet of the heat exchanger system assure equal distribution to and continuous discharge from the system.

Nodules leaving the chain system enter the heat exchanger system at about 212 deg. F. and are preheated in it to about 600 deg. F. This preheating is also efficient, due to the increased surface contact between the nodules and the heat exchanger system. The length of the heat exchanger system is necessarily governed by the temperature of the gases which can be allowed at the point where these gases enter the heat exchanger system.

With the internal equipment in the kiln, as mentioned in the foregoing, the temperature of the gases leaving the kiln will be reduced to about 330 deg. F. In other words, practically all the heat content of the gases has been utilized.

Heat in Dust In order to reduce the amount of dust, the 119-ft. long feed end of the kiln (where the slurry preheater, the chain system, and the crosses are installed) has a greater diameter—10 ft. 9 in.—than the balance of the kiln. By means of this increased diameter the velocity of the gases is correspondingly reduced, which naturally means that less dust pickup occurs from the material passing down through the kiln. Furthermore, as the gases containing the dust pass through the slurry in the preheater, a great deal of the dust is absorbed by the slurry.

REO Super-V

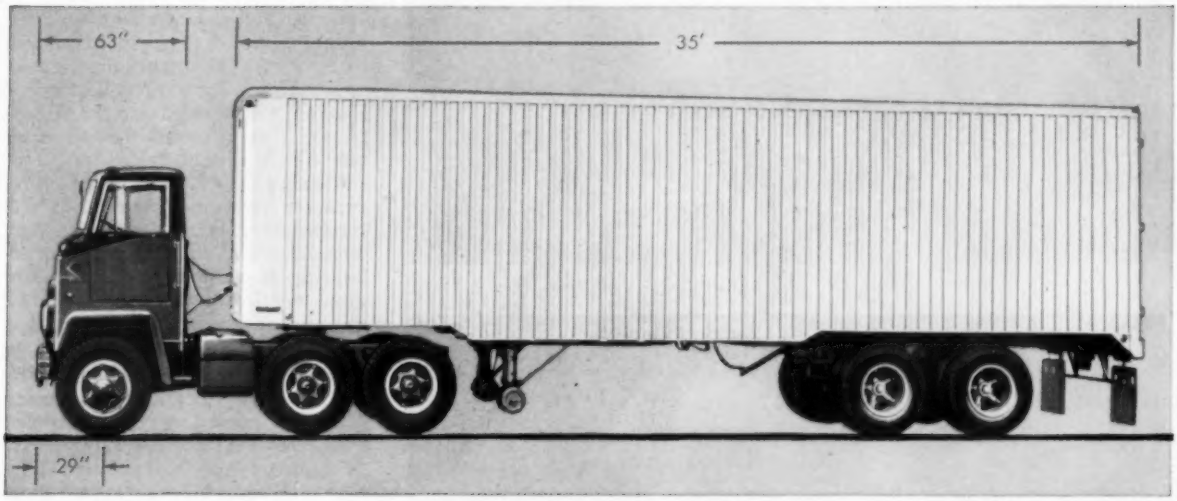
Only New COE Completely Designed For

You're looking at the industry's first complete answer to the needs of today's high-volume trailer operators. Reo's new "Super-V 63" Tractor is built for this specific purpose. It is proportioned and powered to guarantee the *greatest possible payloads* within legal limits for all modern trailers. Here is a combination of *greater* power, *greater* maneuverability, *greater* visibility and roominess for the operator, together with greater accessibility for service and maintenance, than anything of its kind on the road today.

Its giant 207 and 235 h.p. Reo Gold Comet engines are, pound for pound, the most powerful truck engines ever built. Available in gas or LPG models, backed by a *100,000 Mile or 1 Year Warranty.*

Reo's "Super-V 63" Tractors are available with all standard wheel-bases. So before you buy any other cab-over for pulling a high-volume trailer, be sure and *look at Reo.*

63 Tractor



MORE PAYLOAD

Measuring only 63" front-of-bumper to back-of-cab, Reo's new Super-V 63 Tractor pulls 35' trailer within 45' over-all when equipped with full-size sleeping bunker. This, together with only 29" bumper-to-center-of-front-axle measurement, guarantees greatest possible loads within legal limits.

MORE MANEUVERABILITY

Shorter turning radius plus power steering makes city driving and close-quarter handling for dock loading and unloading easier than ever before.

MORE VISIBILITY

Roomy, "Control Tower Cab" with 360° visibility provides greater driver comfort, safety, less fatigue. No distortion. Glass is optically perfect.

MORE POWER

Reo 207-235 h.p. V-8's are pound for pound the most powerful truck engines ever built. As much as 35% more efficient than industry average.

Today's High-Volume Trailers of All Kinds!

Mail for Complete Information Today!

REO MOTORS, INC., Lansing 20, Michigan

Please send, immediately, information on the following:

New Reo "Super-V 63" Tractors_____

Reo Truck Line_____

Gold Comet Engines: V-8's_____ Sixes_____

Gas_____ LPG_____

Name_____

Company_____

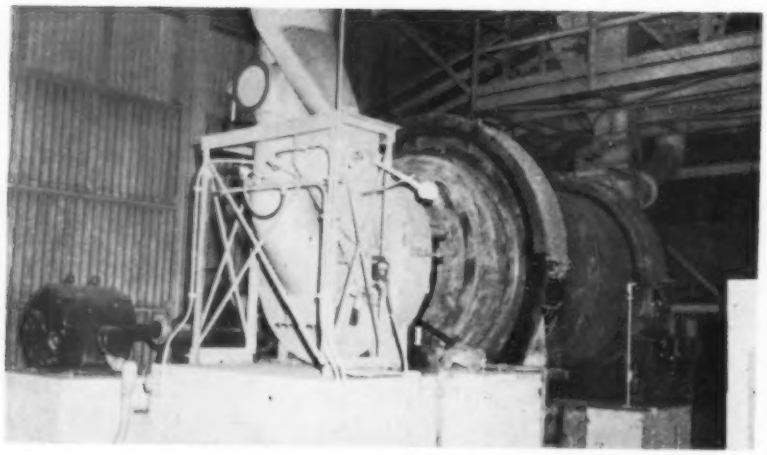
Title_____

Address_____

City_____ (Zone)_____ State_____

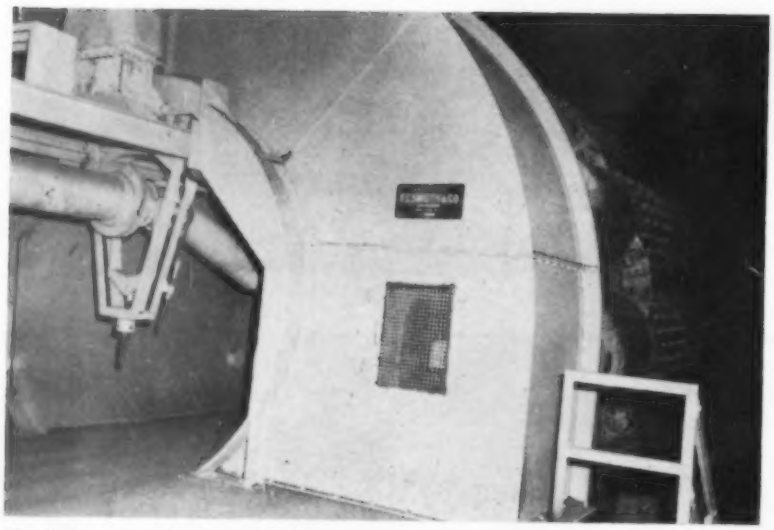
REO

WORLD'S TOUGHEST TRUCK



A closeup view of the coal pulverizer.

An extensive series of recent tests to determine the dust loss from this kiln showed that the amount of dust in the gases discharged from the slurry preheater actually amounts to approximately 1 percent of the weight of the dry, raw material fed to the kiln. These gases are treated in a cyclone-type dust collector before being discharged into the atmosphere. Thus it is seen that the dust loss is indeed remarkably low. The statement regarding the clinker temperature averaging 350 deg. F. is a statement of fact based on actual measurements; and the fact that no hot air is wasted, of course, has direct bearing on the temperature of the clinker leaving the cooler.



The discharge hood for the cooler, showing the observation port.

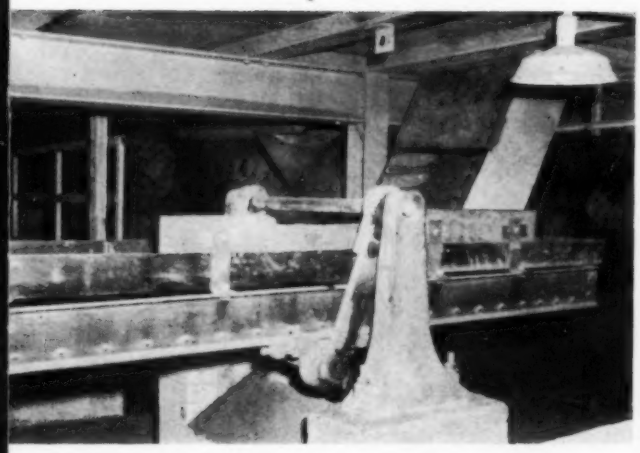
Heat in Clinker The kiln is equipped with an integral Unax cooler consisting of 11 cooler cylinders, each approximately 4 ft. in diameter and 23 ft. long. This size of Unax cooler is larger than would normally be selected for a kiln of similar capacity. For this reason, the heat losses in the clinker leaving the Unax cooler have been reduced, and actual measurements of the clinker temperature indicate an average of 350 deg. F. The new kiln system also produces clinker of relatively small and uniform size, an added advantage resulting from the internal equipment in the feed end.

The Unax cooler provides counter-current cooling of the clinker by means of the air for combustion, which is correspondingly preheated before entering the kiln proper. There are no separately-moving parts, and no fans are required for blowing the air through the hot clinker. The two original kilns are also equipped with Unax coolers, and all cooler cylinders have specially-designed cascaders for handling the hot clinker; these add materially to the efficiency of the coolers.

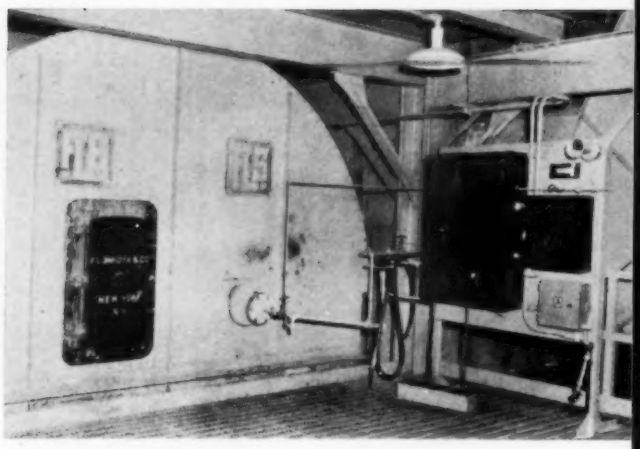
Inlet end view of the cooler at the burning zone end of the kiln. Each cylinder is 4 ft. in diameter and 23 ft. long.

Radiation From Shell In order to reduce this heat loss, a considerable length of the kiln (130 ft.) is lined with 6-in. and 4½-in. insulating firebrick. Furthermore, the basic brick installed in the burning zone is backed by a 2-in. refractory lining.

The fuel for the new kiln is supplied from a new Smidth Tirax coal mill of the unit-firing type, with an air separator, which returns coarsely-ground coal to the mill for further grinding. The mill is 6 ft. 6 in. in diameter by 12 ft. long, including a

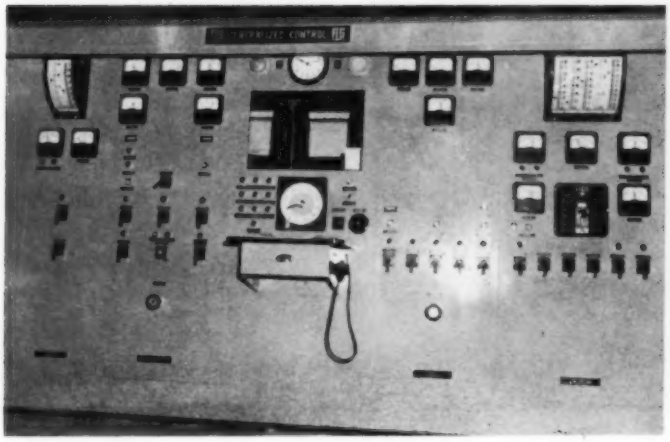


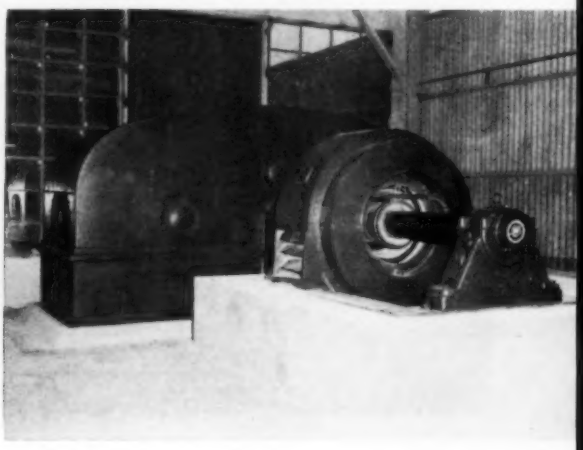
Extension of the present rocking pan conveyor, which handles clinker output from the new kiln at temperatures of about 350 deg. F.

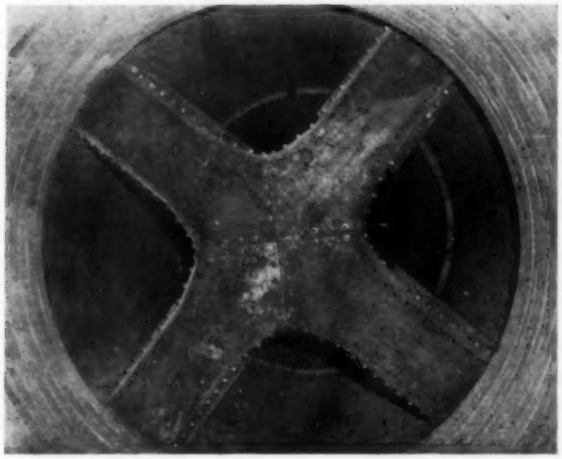


Below, left: The control panel for the new kiln and coal pulverizer. Below, right: The 1,000-hp. synchronous motor and drive on the new raw mill.

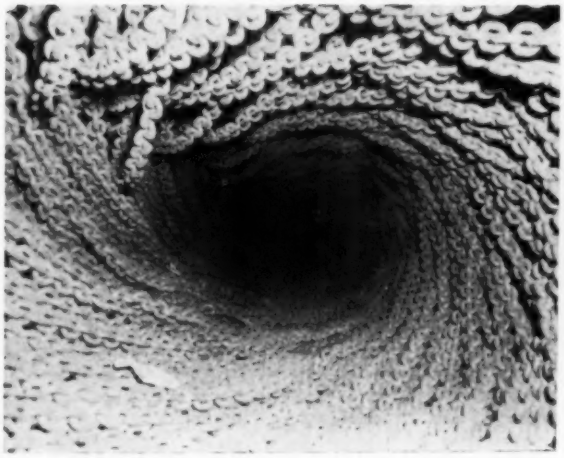
The sampling device for the gas analyzer at the feed end of the 341-ft. kiln recently installed at Brodhead.







The new preheater casting elements, which divide the kiln into four compartments.



A view of the chain system taken during installation shows the arrangement of the loops.

Getting more usable horsepower

LINK-BELT SPEEDER machines have precision-made, heavier components to take this bonus engine power

To get an accurate gauge of shovel-crane work potential, it's important to make your comparisons on the basis of usable horsepower rather than engine size. Why? Because size for size, a Link-Belt Speeder delivers *more usable power or line pull* than other machines powered by the same make and model engine. And greater usable horsepower is bonus power that pays off in easier digging, faster cycles, more production and profits.

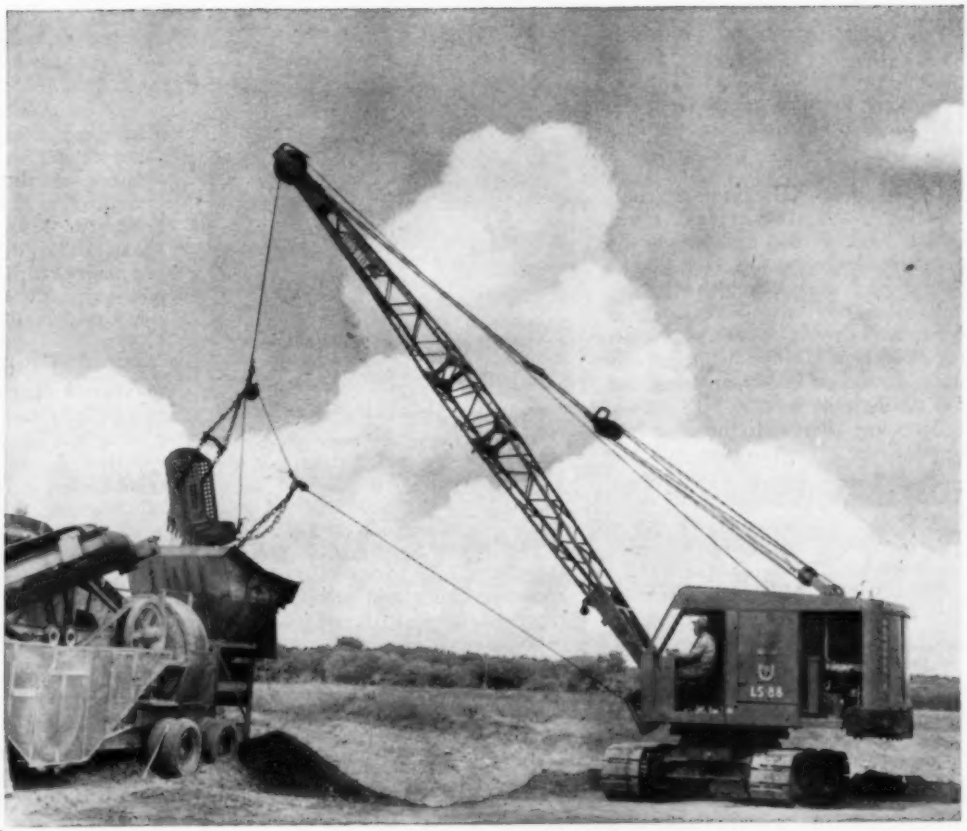
The variation in the amount of power a given engine actually makes available in the form of line pull (or power at the drums) is determined primarily by the net horsepower the engine delivers at the output shaft. Engine Model X, for example, when run at 1200 rpm, delivers *75 hp*. At 1600 rpm the same engine develops *100 hp!*

What permits greater horsepower

Because the Link-Belt Speeder line is the industry's most advanced in design —17 new models—it incorporates the latest development in engineering, metallurgy and fabricating. As a result, every Link-Belt Speeder is an "extra strength" machine — a shovel-crane with the added guts and stamina to take full advantage of the bonus horsepower available in each engine . . . at operating speeds well within the engine manufacturers' recommendations.

Only part of the story . . .

More usable horsepower is but one of many reasons why Link-Belt Speeder machines are completely revising existing profit and production standards. Why not see how you, too, can take advantage of Link-Belt Speeder "years ahead design" . . . earn a bigger return on your shovel-crane dollars. Contact your Link-Belt Speeder distributor for details or write Link-Belt Speeder Corp., Cedar Rapids, Iowa. 14.329



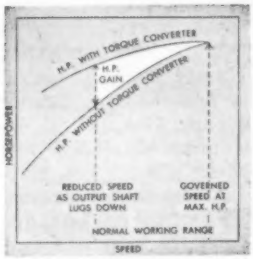
3-point check on usable horsepower

Check the engine manufacturer's "specs" to see what power the engine develops at various speeds. Check the shovel-crane manufacturer's "specs" to see at what speed the engine will be set. Then check the shovel-crane itself, see if shafts, clutches, gears and other components have the size and strength to take full advantage of bonus engine power. You'll have another reason why Link-Belt Speeder is today's top shovel-crane line.

Power hydraulic controls for speed with safety

Speed-o-Matic power hydraulic controls utilize oil under pressure (maintained by an engine-driven pump and variable pressure valves) to actuate clutches. Response is fast, smooth and positive. There's perfect feel of the load under all conditions . . . none of the customary jerk, jump or lag found with air or mechanical controls.

from shovel-crane engines.....



For even more effective use of power

The horsepower gain charted at left is yours with a Link-Belt Speeder equipped with a matched engine torque converter package. Available for all models, torque converters cut digging shock, reduce fuel consumption, match power to the load and reduce engine stalls.

Less chance for end-of-the-shift letdown

Because oil under pressure does all the work, the operator merely needs to flick short-throw levers. He stays fresh and alert, is actually encouraged to push the machine to its high limit all shift long.

It's time to compare . . . with

LINK-BELT SPEEDER

Builders of a complete line of shovel-cranes . . . with exclusive Speed-o-Matic power hydraulic controls

drying compartment, and it is driven by a 100-hp., 860-r.p.m. motor through a speed reducer. The air for drying the coal comes from the Unax cooler and from the primary air fan.

Raw Grinding The original grinding installation, dating back to the time when the plant was built in 1935, consisted of four 8- by 36-ft. Smidth Unidan mills equipped with Symetro gear drives and driven by motors operating at 720 r.p.m. The two raw mills were driven by 800-hp. motors and the finish mills by 900-hp. motors.

In connection with the new kiln installation, a new Unidan mill has been provided for slurry grinding. This unit, 8 ft. in diameter by 40 ft. long, is also equipped with a Symetro gear drive, is driven by a motor operating at 720 r.p.m., and rated at 1,000 h.p. This mill, together with one of the original raw mills, has adequate slurry grinding capacity for the three kilns.

This safety trophy monument shows 2,000 accident-free days worked at the plant since 1951.

The other original raw mill has therefore been converted into a clinker-grinding mill, which operates in open circuit without air separation and is provided with an internal water cooling system. The original Symetro drives have been operated with the same high efficiency for more than 20 years.

Various production phases of this plant have been described in past issues of PIT AND QUARRY. A description of the raw material was presented in PIT AND QUARRY in February, 1941. An earlier issue (May, 1935) described the processing plant and the quarry and departments directly affected by the processes then used to facilitate production.

Since that time a considerable number of changes have been made in methods and processes used, including the use of the then new and modified design of the Smidth cement coolers in 1950, and the method of returning the dust by means of scoops located on the kiln shell below the chain system.

The present slurry preheater represents the ultimate in a continuing endeavor on the part of the company to provide the best method of operation for optimum fuel economy.

Midwest Aggregates

(*From page* 94)

the cooler is received on an 18-in. by 52-ft. radial stacking conveyor which is equipped with a Hewitt Robbins Maltese Cross Jr. glass fibre, heat resistant belt. The stacker discharges onto a surge pile of expanded shale, from which a reclaiming conveyor transfers the material to the final screening and crushing stage.

The reclaiming conveyor, with an 18-in. belt on 52-ft. centers, transfers the shale at 200 f.p.m. to a 38-S. American Pulverizer Ringmill. Driven by a 75-hp. motor this crusher operates at 1,000 r.p.m. Ringmill discharge is chuted to the boot of a 14-in. by 57-ft. bucket elevator and raised to the finishing screen — a 6- by 14-ft. Hewitt-Robbins Gyrex. A double-deck unit, it is equipped with $\frac{3}{8}$-in. and $\frac{3}{16}$-in. screencloth on the top and bottom decks, respectively.

The two fractions separated—$\frac{3}{16}$ by zero and $\frac{3}{8}$ by $\frac{3}{16}$—are chuted to the respective compartments of an underlying 110-ton finished product bin. Material retained on the top deck of this screen, along with any excess $\frac{3}{8}$- by $\frac{3}{16}$-in. expanded shale, is chuted to an 18- by 24-in. Lippman double roll crusher driven by a 60-hp. motor. This roll crusher product is chuted to the boot of the above bucket elevator in closing the crushing and screening circuit.

At present virtually the entire plant output is delivered by truck under contract haulage. However, following the installation of the proposed new 8-ft. kiln and resultant greatly increased output, a nearby rail spur on the property will provide for rail shipment. Competitive rates have been established to all significant points. The plant design contemplated the current plant expansion program and provided for further plant capacity increases as growing demand for the product in Indiana and adjoining states warrants.

The superior quality of material produced in this efficient operation is evident in the fact that 23 lb. blocks made with this lightweight aggregate have a strength exceeding 1,000 p.s.i. The outstanding reputation this material has earned in a very short time is due in part to the inherent quality of the raw shale and in part to the consistent policy of quality emphasis from the start.

Plant operations, with a crew of about 15 men, are headed by A. G. MacPhee, plant superintendent, and William Smith, general foreman. Gordon Brierley Jr. is manager of the company.

KENNETH J. SAMUELS has been appointed administrative assistant to the vice-president and general manager of the Permanente Cement Company, Oakland, Calif. Mr. Samuels has been with Permanente since 1948, serving as administrative assistant to the vice-president and controller.

Great Lakes Vessels Cited For Hauling Record in 1956

According to C. F. Beukema, president of the Michigan Limestone Division of the United States Steel Corporation, the eight self-unloaders of the Bradley Transportation Line, which haul calcite, dolomite, and limestone from Division quarries at Rogers City and Cedarville, Mich., to cement plants and other industries in the Great Lakes region, have completed their most successful year in fleet history.

The steamer *John G. Munson* surpassed her own Great Lakes record for tons of cargo hauled in a single season. During the 1956 shipping season Bradley ships hauled nearly 10,500,000 tons of stone and coal.

The ships began their winter layup on December 21, the latest date in fleet history.

JOHN B. HILKIN has been named Chicago sales representative for the Zonolite Company, Chicago, Ill. In his new assignment Mr. Hilkin will contact architects, contractors, plasterers, and building supply dealers.

EDWARD B. CLAYTON has been appointed to Zonolite's sales staff and will service the south New Jersey area.

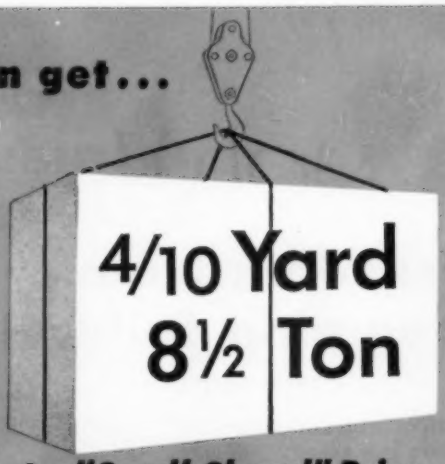
E. F. Reilly will cover the area of eastern Massachusetts and northern Rhode Island.

TOM DILLON, who served the area to which Mr. Reilly has been appointed, was transferred to eastern Pennsylvania.

Why take less when you can get...

MORE!

MORE Big Shovel Features
MORE Capacity
MORE Work and Profits



at a "Small Shovel" Price

With the all new 4/10 Yard 8½ ton 85A "QUICK-WAY"®

When you can make money with a small outfit, think how much more money you can make with the husky "QUICK-WAY" 85A. Why be satisfied with a 6 or 7 tons in the ⅜ yard class when you can get 8½ tons in the 4/10 yard "QUICK-WAY" 85A—and for approximately the same price.

The new "QUICK-WAY" 85A has more Big Shovel Features than any other in the small shovel field. It has been engineered to meet rugged, heavy-duty specifications with fewer moving parts. The power train is oversize, all shafts are splined for easy maintenance. Extra strength has been built in the machinery frame and gantry for greater lifting power. It has been simplified for easy, economical maintenance of all parts. It operates smoothly and quietly with maximum production and minimum operator fatigue.

The All New "QUICK-WAY" Crawlers 85AC and 105AC

Now you can get the "QUICK-WAY" 85A and 105A on a crawler! You get the same "QUICK-WAY" Big Shovel Features on the crawler that gets to its job easily, stays with the work, even in close, restrictive quarters. The new "QUICK-WAY" Crawler has independent travel—forward and reverse speeds of ⅞ miles per hour in low range and 1¾ miles per hour in high range. It is now available in 16" crawler shoes (5.1 psi ground pressure), 24" crawler shoes (3.5 psi ground pressure), and 32" crawler shoes (2.5 psi ground pressure). Width of 95" has been especially designed for hauling on trailers.

• The Most Complete Line in the Small Shovel Field with 5 Models—105A 5/10 yd., 10½ Tons—105AC 5/10 yd., 7 tons —125A 6/10 yd., 12½ Tons—with the famous money-making line of "QUICK-WAY" attachments for all models.

1 SIMPLIFIED CHAIN AND GEAR DRIVE for efficient, quiet operation—the combination of roller chains and precision machined gears gives efficient transmission of power through the minimum number of moving parts. Standard engine 47HP @ 1800 rpm.

2 MAIN HOIST AND HAUL BACK DRUMS are mounted on a single, accessible shaft with sealed antifriction bearings. Two-piece cast laggings are easily changed. Large clutch and brake drums have separated surfaces with louvres for cooling.

3 LARGE SWING DRUMS are ribbed for cooling and are mounted on a king-sized horizontal swing shaft. Vertical swing shaft is mounted in double anti-friction bearings at top with an anti-friction needle roller bearing at bottom. One-piece, bonded brake linings provide more surface for smoother, cooler operation.

4 OVERSIZE CLUTCHES have more surface—for smoother, positive action. Hydraulically operated for easy, sure application of power, giving the operator the feel of the load at all times.

5 POWER UP AND DOWN BOOM HOIST IS STANDARD. Simple precision design makes safe, sure operation. A one-piece cast steel unit contains pawl teeth, windlass and brake drum. The cable end is located in an easily accessible place for quick attachment change-over.

6 ONE-PIECE FLOOR FRAME, HEAVY DUTY SWING TABLE GEAR AND HOOK ROLLERS— Floor frame electric welded in jig, then all bearing mounts machined at one time for precision alignment. One-piece, cast steel swing table gear. Four hook rollers distribute load.

7 ALL SHAFTS SPLINED, ALL ANTI-FRICTION BEARINGS— All shafts extra large for maximum strength, precision splined for easy maintenance. Anti-friction bearings used on all high-speed, continuous rotating shafts and drums. All shaft bearing surfaces are precision ground.

8 MACHINERY HOUSING DESIGNED FOR COMPLETE, EASY ACCESS to all machinery. New feature is an automobile hood-type cable trough cover that lifts high for complete access to central machinery. New cab has 360° vision through removable safety-glass windows.

"QUICK-WAY" TRUCK SHOVEL CO. • DENVER, COLO. Pettibone Subsidiary

GET THESE IMPORTANT BOOKS . . . FREE!

- ☐ The new catalog on the "*QUICK-WAY*" 85A and 85AC Crawler.
- ☐ The new catalog on the "*QUICK-WAY*" 105A and 105AC Crawler.
- ☐ The new catalog on the "*QUICK-WAY*" 125A.

"QUICK-WAY" TRUCK SHOVEL CO., Dept. 207
2401 East 40th Ave., Denver 5, Colorado, U.S.A.

*Name*_____ *Title*_____
*Company*_____
*Address*_____
*City and State*_____

NOW!

Freedom from pumping failure!

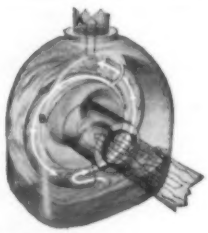
SELF-PRIMING

Important announcement to pump users! Here is a pump that never fails, never quits. Solids do not foul this pump. This new Gorman-Rupp design has *straight-in* suction. Pumped liquid enters direct to the eye of the impeller—increased capacity, higher efficiency, higher lift. Simpler. Fewer parts. Now available in sizes 1½", 2" and 3".

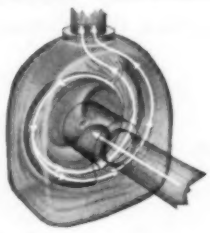
GORMAN-RUPP

New "80 Series" Pumps

PUMP AT REST
Captured liquid retained for priming. Note the absence of the usual check valve.



PRIMING ACTION
Entrained air (B) escapes at (A) to be discharged. Priming liquid returns (C) to entrain more air.



PUMPING ACTION
Straight-in suction voids entrance restrictions. Water enters direct to eye of impeller.

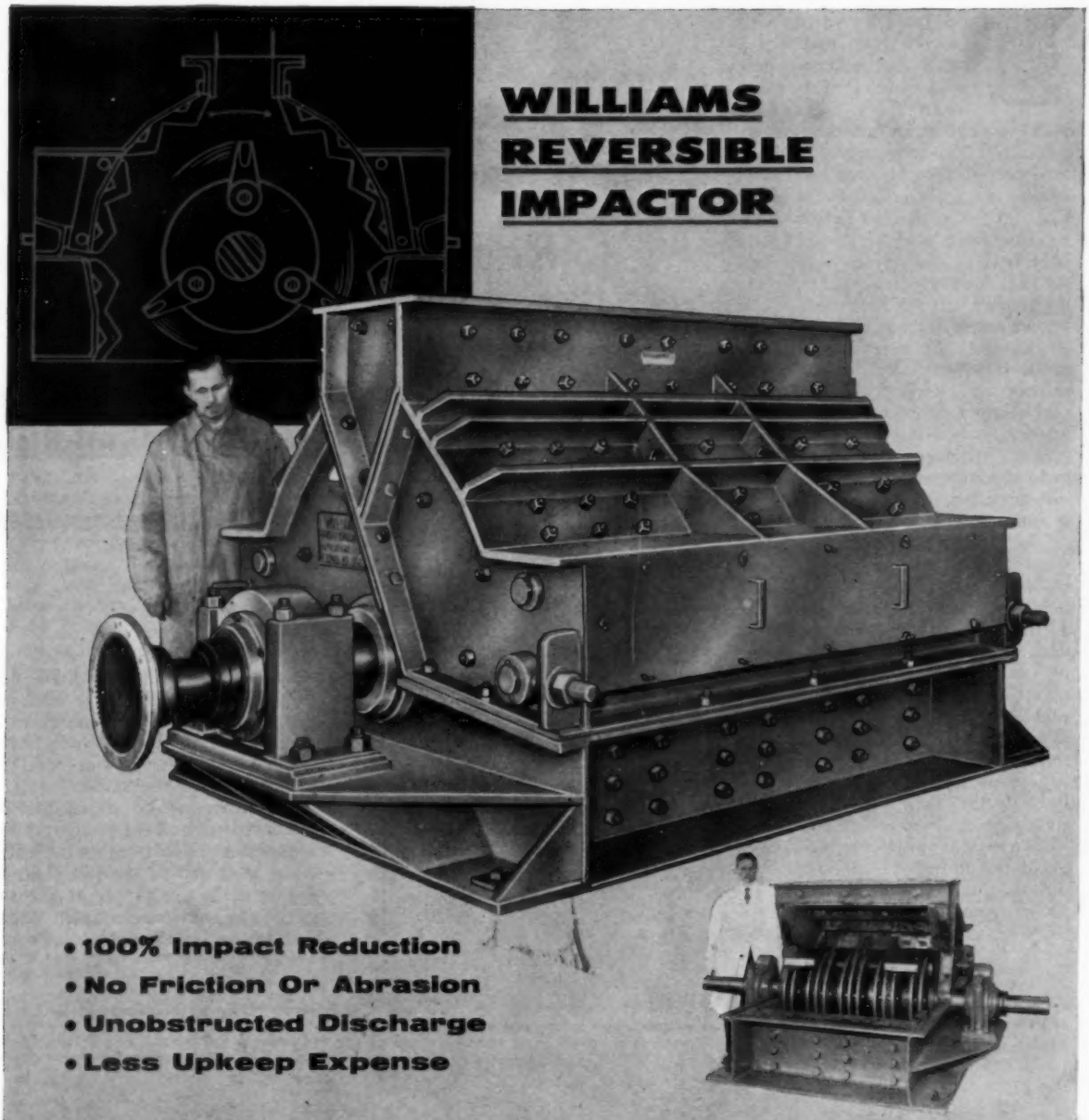
CHECK THESE NEW-DESIGN FEATURES!

- Straight-in suction
- No check valve
- Lighter in weight
- Long-life mechanical shaft seal

Engine or motor driven. Base or wheel mounts.

THE GORMAN-RUPP COMPANY
305 Bowman Street • Mansfield, Ohio

WILLIAMS REVERSIBLE IMPACTOR



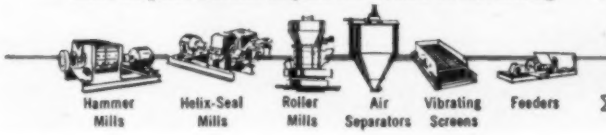
- 100% Impact Reduction
- No Friction Or Abrasion
- Unobstructed Discharge
- Less Upkeep Expense

Internal view showing manganese steel impact blocks, hammers and liners. Rugged, heavy steel plate construction. Extra large shafts are mounted in oversize bearings sealed in self-aligning housings.

Unequalled For Secondary Grinding

Reduces limestone and material of similar hardness to 1½", ¾" or smaller. Properly adjusted, the Williams Impactor makes excellent material with the proper percentage of fines for road base course. Unusually low upkeep expense as reduction is 100% by impact. Material is fed to enter between the hammers and is thrown against the impact blocks setting up a repeated ricochet action which accomplishes the reduction. Adjustable impact blocks adjust for wear. A reversing switch on motor permits rotating hammers in either direction, to the left today and to the right tomorrow, thereby giving double hammer life. No grates are used. Entire bottom is open permitting unobstructed discharge of crushed material and less wear and tear. A size for every job. Let us tell you about one for your use.

WILLIAMS PATENT CRUSHER & PULVERIZER CO.
802 St. Louis Avenue — St. Louis 6, Mo.



WILLIAMS
CRUSHERS · GRINDERS · SHREDDERS
Oldest and Largest Manufacturers of Hammer Mills in the World

Another ON THE SPOT Report

N.Y. Plant Built to Supply Ready-Mix Aggregates

two deposits, plant design achieve maximum flexibility

By WALTER E. TRAUFFER

DEWITT Sand and Gravel, Inc., operates a small but efficient new sand and gravel plant near East Syracuse, N. Y., which has an interesting story behind it. This company is a separate corporation but has the same owners as the Gessler Contracting Co., Inc., a road and general contracting firm, and Syracuse Ready Mix, both of East Syracuse. The latter firm for some time had difficulty in getting an adequate supply of aggregates of the quality and gradation desired. As a result it was decided to become self-sufficient in this respect, and Dewitt Sand and Gravel was formed for the production of aggregates. Officers of this company are A. W. Gessler, president and general manager, and William Nass, vice-president. H. I. Thomasmeyer is superintendent.

The neighborhood was first scoured, with the aid of soil maps, to locate suitable deposits, and test holes were drilled. Two deposits (No. 1) were located across the road from each other and about 5½ miles east of the plant site, which in turn is about 1¼ miles east of the ready-mix plant in East Syracuse. Another deposit, known as No. 2, is about 20 miles northwest of the plant. Both are accessible over direct routes with light traffic. After thorough tests these deposits were acquired.

The near deposit (No. 1) is used most, not only because it is closest but also because it meets local competitive materials. It also has finer material below ground water level which is dug to meet the demand for masons' sand. The No. 2 deposit is of higher quality, and it is hoped that it will meet N. Y. State Highway specifications. The No. 1 deposit averages about 5 percent No. 2 gravel, 45 percent No. 1 or pea gravel and 50 percent of concrete sand. The No. 2 deposit contains about 20 percent No. 2 gravel, 35 percent pea gravel and 45 percent sand.

The plant site was selected not only because it was close to the ready-mix plant and the main deposit, but also because it had an ample amount of water and electric power available for washing purposes. The ground water level is only 3 ft. from the surface, a fact which created some difficulties in the construction of the plant and the arrangement of stockpiling facilities.

The first step at the plant site—digging the water supply and waste pond—was started in April, 1955. The plant was built during the sum-

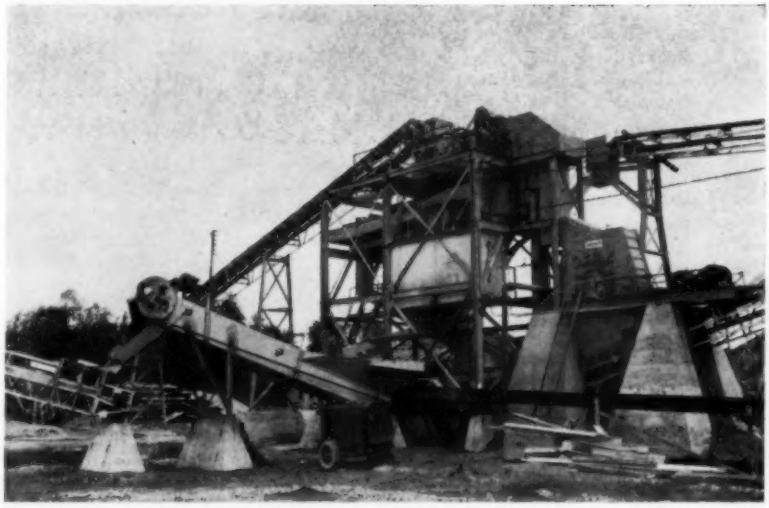
A general view of new sand and gravel plant of Dewitt Sand and Gravel, Inc., built near East Syracuse, N. Y., to supply aggregates for an affiliated ready-mix operation. Two of four radial stockpiling conveyors are shown.

mer and was in operation on September 15, 1955. It was designed by the Iowa Manufacturing Company, which also made or supplied all of the equipment. It is a straight-line plant, designed for the making of special products. Enough material was stockpiled to carry over the winter. The plant was reopened for full operation in April, 1956. Only the material in excess of the affiliated companies' needs is sold, and this phase of the business has steadily increased due to the quality of the product. The plant has a capacity of 100 t.p.h. (average).

The No. 1 deposit was farm property, and only 4 to 5 ft. of dirt overburden needs to be removed. There is 25 ft. of material above water level, and tests to 40 ft. below water level show good material. Digging is now being done close to the water level with a Lorain No. L80 diesel dragline having a 60-ft. boom and a 2½-cu. ft. Blaw-Knox bucket. A level shelf is left above water level, so that when finer material is desired, it can be dug out from under the water and deposited on the shelf for drainage before it is loaded into trucks for the plant. This fine material is run as demand requires the build-up of a supply of brick sand at the plant.

Four company-owned 9-cu. yd. dump trucks are used to haul material to the plant. As these trucks come into the plant, they are weighed to check weight for highway regula-

The 2½-cu. yd. diesel dragline loading to trucks at Pit No. 1.



Right: The sand tower with the scalping screen, sand scalping tank, impact breaker, screw sand washer, and a radial sand stockpiling conveyor.

Below: A closeup from the opposite side of the sand tower, showing the screen, scalping tank, impact breaker, etc.

Below: The gravel screening tower with the return conveyor to the impact breaker, and the two radial gravel stockpiling conveyors.

A pneumatic-tired front-end shovel unit loading from the stockpile to a truck.

tion compliance, and also keep a record of input for inventory purposes.

The trucks dump their loads into a 10-cu. yd. hopper. A reciprocating feeder supplies a 30-in. by 100-ft. belt conveyor to a 4- by 12-ft. Cedarapids 3-deck horizontal screen. This unit has 1½-in., ¼-in., and No. 8-mesh screen cloth on its decks. It is equipped with washing sprays.

The ⅛- to ¼-in. material over the bottom deck goes to a split chute, so that any desired amount can be added to the concrete sand to control the gradation to meet A.S.T.M. specifications. The balance of this material by-passes the crusher and goes to the gravel screens.

The minus 8-mesh material and water through the bottom decks of the screen goes to a 20-ft. Eagle 3-cell scalping tank with power-operated valves. One cell is now blocked off, and the other two can make concrete and masonry sands at the same time if desired.

When concrete sand alone is being made, only a small amount of the minus 100-mesh material is wasted. When brick sand is being made, either alone or simultaneously with concrete sand, only minus 200-mesh sand is wasted. There are two 36-in. dia. by 25-ft. Eagle single-weir, single-screw washers, one for concrete and one for mason sand. The only difference between them is that the fine sand screw is driven at 8 r.p.m. and the coarse screw at 17 r.p.m. Each gets water from the tank, and some water also comes from the gravel screen. Water can also be added at either end of each screw. The product of each screw is discharged to an individual 24-in. by 70-ft. radial stockpiler or stacker.

The material that passes through the 1½-in. top deck screen but passes over the second deck ¼-in. screen is chuted and also by-passes the crusher. All material passing over the top deck 1½-in. screen goes to a Cedarapids 2222 impact breaker. The impellers are driven by 40-hp. motors at about 500 r.p.m. to break this material down to the desired size. The product of this breaker falls on top of that part of the material from the bottom and middle deck going to the gravel screens. This is carried on a 24-in. by 90-ft. belt conveyor to the gravel screening tower. There the material is discharged on a 4- by 12-ft. Cedarapids 2-deck horizontal screen equipped with 1½- and ¾-in. cloth. Any oversize (plus 1½-in.) material is returned on an 18-in. by 105-ft. belt conveyor to the breaker.

The other two sizes—¾- to 1½-in., and minus ¾-in.—are discharged into two 25-ton truck-loading hoppers. An automatic overflow arrangement on each hopper feeds to two more 18-in. by 80-ft. radial stockpiling conveyors. A Hough Payloader is used for loading from stockpiles into trucks for shipment. All shipments are weighed on a Howe 50-ton scale with a Weightograph attachment and a 10- by 45-ft. concrete platform.

One of the four stackers runs on wheels on a circular track devised by DeWitt Sand & Gravel personnel. The others are mounted on pneumatic tires but will later be put on tracks also. The floor of the stockpiling area is gravel on the soft and often wet ground, capped with sand. This combination has worked out very satisfactorily.

The overflow of silt, fines, and water from the scalping tank and the screw washers is flumed to a U-shaped pond dug out 18 ft. deep and 100 ft. wide, each leg of the U being 300 ft. long. The waste flows into one end, and wash water for the plant is drawn out of the other. The slow current thus created permits adequate settling time. Once or twice a year the settlings are dug out and used to fill in swampy areas on the property.

The wash water for the plant is provided by a 5- by 6-in. Allis-Chalmers centrifugal pump at the rate of 1,250 g.p.m. Pressure at the sizing screens is 125 lb. with a 25-ft. vertical head. The use of 8-in. pipe at both ends to reduce friction loss made it possible to replace the original 100-hp. motor with a 60-hp. model.

Power for this plant is brought 1,200 ft. from high-tension lines to transformers on the property. There it is reduced to 440 v. for all motors and 110 v. for lights, etc.

The Cedarapids impact breaker used in this plant has reversible hammer tips on the three blades of each impeller. When the top edge of a hamer tip becomes worn, it is turned around. The tip is made of cast alloy, which is cheaper to replace than to rebuild.

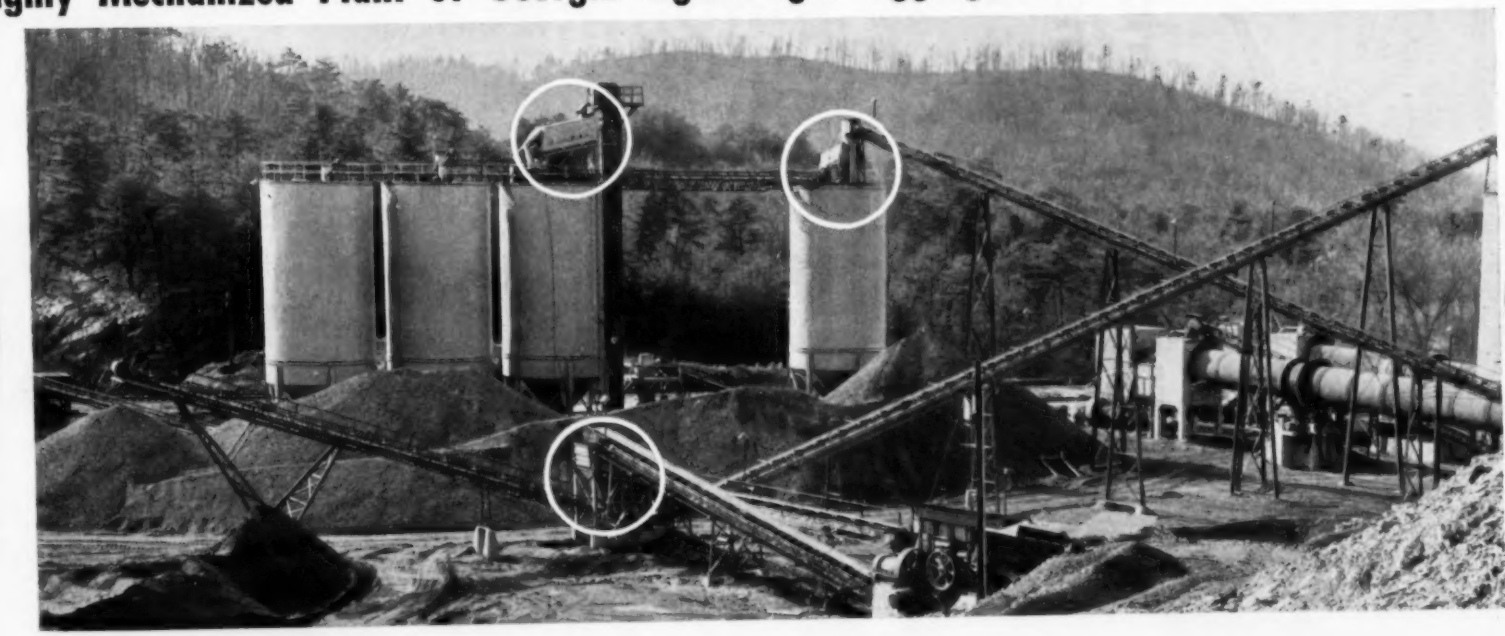
ANDREW L. BURRUS, 67, executive secretary of the Tennessee Crushed Stone Association died recently in a hospital at Union City, Tenn. Mr. Burrus had held his post with the association since 1953. He was Obion County highway supervisor from 1929 to 1942. In the latter year he became county judge, a post he held until 1950. Mr. Burrus was stricken with a heart attack last June, and had been hospitalized since that time.

ROBERT E. HAIR, retired general manager of the Gypsum, Lime and Alabastine Company of Canada, Ltd., died recently in a hospital in Paris, Ontario. He was 92 years old. The concern developed from an original capital investment of $25,000 into a multimillion-dollar operation.

ROBERT W. LEA, 70, president of Johns-Manville Corporation until his retirement in 1951, died at his home in New York. Mr. Lea joined Johns-Manville in 1939. After his retirement from this firm, he served as consultant to the Olin Mathieson Chemical Corporation.

GEORGIA PRODUCER CHOOSES 4 SECO'S!

Highly Mechanized Plant of Georgia Lightweight Aggregates is last word in efficiency



At Rockmart, Georgia, 45 miles northwest of Atlanta, is Georgia Lightweight Aggregates' new plant for the preparation of expanded shale aggregates.

In the photograph above, you see only a part of this highly mechanized, continuous flow operation designed by Otto C. Frei. In the complete process, Georgia Lightweight Aggregates quarries and converts Georgia slate into expanded lightweight aggregates. Four SECO vibrating screens are on the job here, handling total plant screening.

Marketed under the trade name "Galite," this lightweight, soundproof, water resistant, concrete structural material is winning new customers every day.

Planning a new plant or improvement of your present plant? We invite you to learn why SECO should be your choice of vibrating screens, too! Write, wire or phone.

SECO
TRUE CIRCULAR ACTION
VIBRATING SCREENS

SCREEN EQUIPMENT COMPANY, INC., Buffalo 25, New York

Summit Mining Corporation . . .

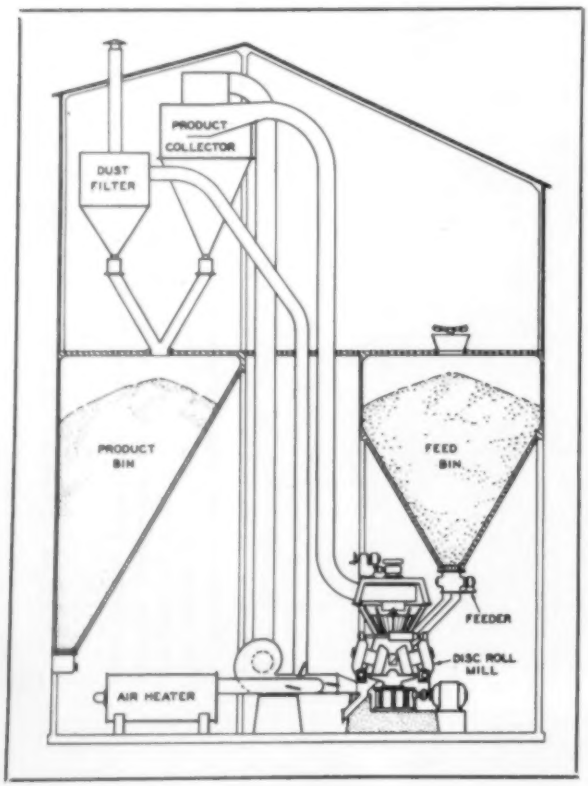
first eastern sericite mine producing mineral filler with disc roll mills

Another ON THE SPOT Report

By ROY L. PECK

FOR many years the residents of Adams County, Pa., had known of the existence of various so-called soapstone deposits in an area north of historic Gettysburg, which has lately achieved prominence as the farm home of President Eisenhower. Discovery of other deposits in the county led to the organization of the Summit Mining Corporation, with headquarters at Carlisle, Pa., in June, 1950.

This company now holds more than 40 leases on approximately 3,000 acres of land in Adams and adjacent counties, and is mining one deposit located near Bendersville, southwest of Harrisburg, Pa. This is a uniform deposit sufficiently close to the surface to be strip-mined. According to Summit officials, this is the first sericite (soapstone) mine in Eastern United States, other equally pure deposits being found only in California. The company is the first in this country to use the Hardinge disc roll mill in this operation, although some 800 such mills in the eastern hemisphere are being used for various grinding operations.



Basic elements of the Summit grinding system.

This soapstone, at first thought to be pyrophyllite, was later correctly identified as sericite schist, a hydrous alumina silicate, whose chemical analysis resembles pyrophyllite, except that it has a slightly higher iron and potash content. It contains approximately 75 percent SiO_2, 14 percent Al_2O_3, 5½ percent K_2O, 3 percent Fe_2O_3, and various other oxides in small degrees.

The trade name which Summit has given its refined product is "Ser-X." When reduced to an average particle size of 3.4 microns, the product provides a chemically inert and relatively inexpensive filler for various industrial applications. The company has found a ready market for its product as an asphalt filler in such specialized applications as protective coatings for underground pipes, to prevent corrosion. Another application which has been found for this new product is as a filler for certain special joint-sealing cements. Because of its bulk density, it has excellent drift control properties, and in use as a diluent for plane and ground dusting.

Summit first began operations with a small processing plant located at Dillsburg, 22 miles from the mine, which included crushing units and a roller mill. As their markets grew, increased production became necessary, and Summit officials decided to erect a new milling plont. They chose a site which had satisfactory

truck and rail facilities closer to the mill properties.

The Hardinge Company had, shortly prior to this time, acquired rights for their disc roll mill from Loesche, in Germany, and the installation of a No. 9 mill in the new Summit plant built at Aspers, Pa., near the Bendersville mine operation, was the first commercial operation of this mill on the North American continent. Construction of the new processing plant began early in 1955, and the plant has now completed its first year of operation. Basically, the flow of material through the plant is about as follows, and material movement within the plant can be seen on the accompanying diagrammatic sketch.

The soapstone rock is dug from the open-pit mine by tractor-mounted power shovels and is loaded into trucks for the haul to the crushing plant. Here it is dumped into an 18- by 30-in. Universal jaw crusher, which discharges onto a single-deck 4- by 8-ft. vibrating screen, equipped with ¾-in. cloth. Oversize off this ¾-in. screen goes *via* a belt conveyor to a Telsmith gyratory crusher, with which the primary crusher is in closed circuit.

Minus ¾-in. material passing the screen is fed by a bucket elevator to two steel storage silos, both 40 ft. high, having a diameter of 15 ft. 6 in. From these silos an 18-in. wide belt conveyor, operating below grade, brings the crushed ore as needed, to a Link-Belt bucket elevator feeding two 10-ton bins inside the plant. These are located ahead of the two Hardinge pulverizing mills. Feed to the mills is regulated by two 18-in. Hardinge volumetric non-flooding drum feeders.

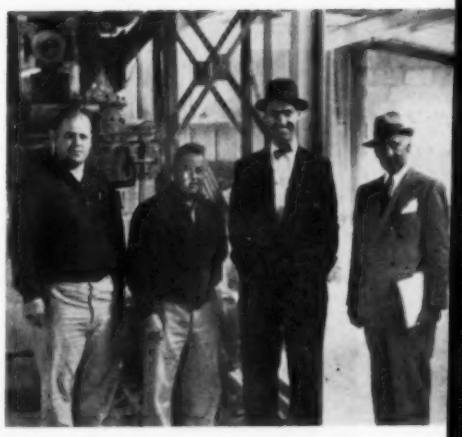
The rock is dried during the grinding operation. An oil-fired air heater provides heated gases to the grinding and classifying system, and the vaporized water is exhausted from the system through a bag filter. As the moisture of the rock varies from time to time, the temperature of the heated gases is regulated by automatic thermal controls.

After the plant had operated about a year, the company installed another set of mills, baggers, classifiers, cyclone collectors, and Fuller Airslides, so that from the point where the material enters the plant, all operation is in duplicate. The accompanying photographs in some cases show only single units of some of the equipment items.

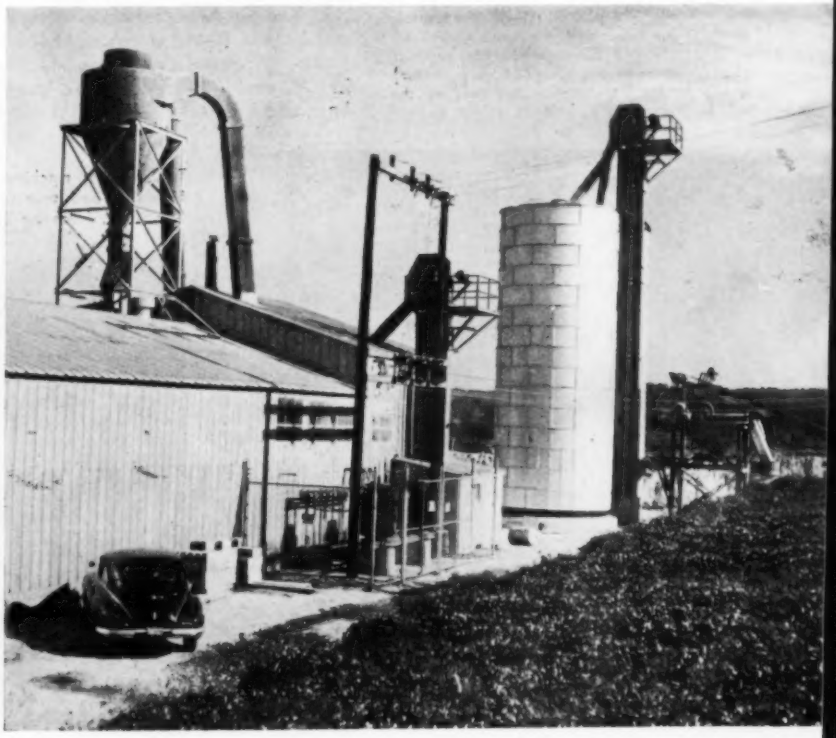
The material being ground is carried by Fuller Airslides through piping from the grinding chambers of the mills to the two Hardinge Gyrotor classifiers on top of the roll mills, which reject the oversize and return it to the mill tables for further grinding. When the ground material reaches the desired fineness, it is transported by Airslides to two cyclone-type collectors on the plant roof. From this point it is discharged to a surge bin and thence to the two bagging machines.

One feature which has been incorporated into the roll mills, not presently used with the Loesche de-

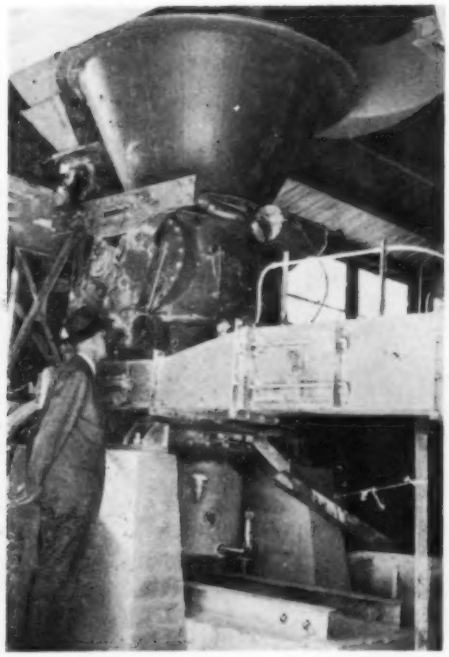
From left, Peter F. Bianchetta, engineer; Edward C. Beard, plant superintendent; George W. Ahl Jr., president; George W. Ahl Sr., treasurer.

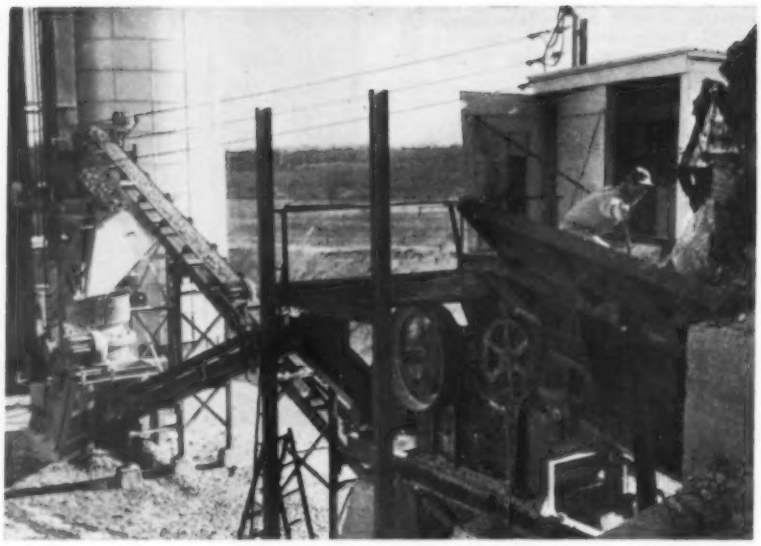


A general view of the Summit Mining Corporation plant at Aspers, Pa., showing the mill building and the crushed ore storage silos. The product collector above the roof discharges into a surge bin over a bagging machine.



A closeup of one of the two disc roll mills, showing the direct feed connection to the base of the mill.





Summit's crushing operation. On the extreme right is a truck dumping sericite ore into the feed to the primary crusher (lower right). On the left is a vibrating screen above the secondary gyratory crusher. Raw material silos are seen in the background.

sign, and which provides better control of the pulverizing operation, is the use of the Hardinge air classifier. This equipment, having a variable-speed rotor, provides for extremely close size control of the product over a wide range.

A second feature in the roll mill is the introduction of pneumatic cylinders, attached to the roller arms, rather than to the Loesche spring-loaded arrangement. This provides uniform roll pressure during operation, and permits removal of the pressure for low-power starting of the mill.

The roll mill and classifier, with the control panel at the left. Return air and heated air enter at the mill base (left). The product discharged from the classifier (top center) is fed to the collector on the roof of the mill building.

The Summit plant has now operated approximately 14 months, 24 hours per day, and is producing upwards of 7 tons per hour of the end product, "Ser-X," from each mill. The dustless appearance of the interior of the plant speaks well for the efficiency of the equipment, as well as for the housekeeping attributes of the Summit plant personnel. The mills operate so quietly and smoothly that it is difficult to realize how much work is actually being done inside the equipment.

The product is presently shipped in 50- and 70-lb. multiwall paper bags to 16 states and 4 foreign countries. Loading facilities at the plant permit shipment in either trucks or railroad cars. Company officials include George W. Ahl, Jr., president, and George W. Ahl, Sr., treasurer. Plant executives at Aspers are Peter F. Bianchetta, engineer, and Edward G. Beard, plant superintendent.

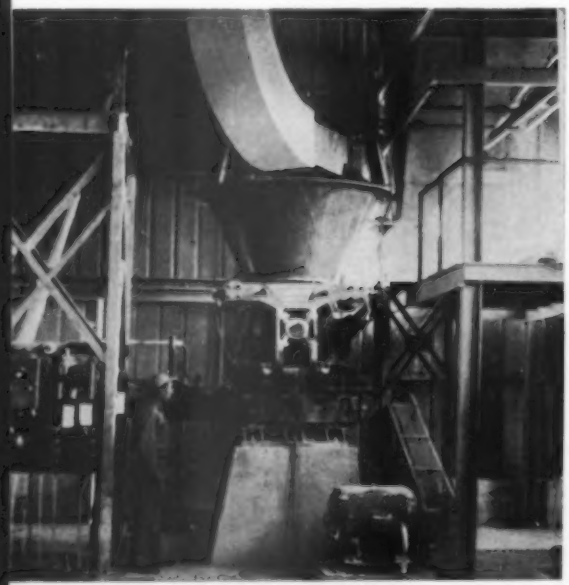
Labor Developments

(From page 64)

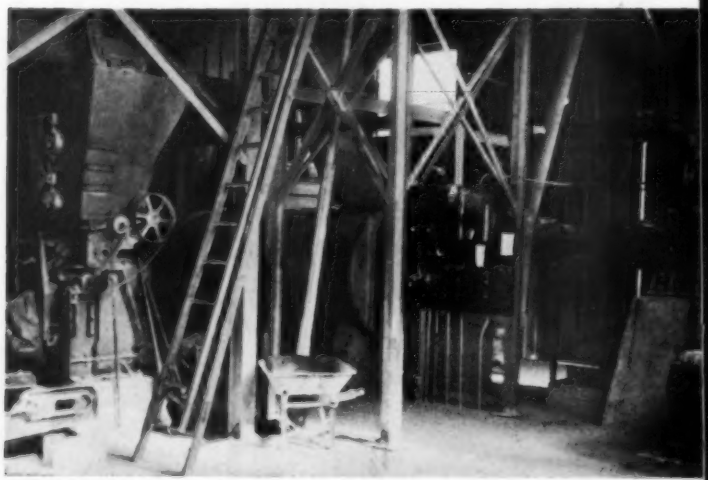
the matter is that an employer severely harassed by a union which apparently does not represent any significant number of his employees has been able to secure at least temporary relief.

Of perhaps even greater importance is the fact that the "sanctity of the picket line" doctrine is being called into question, at least, where common carriers who have a duty to deliver are involved. Of special significance in this connection is the fact that not only the trucking company was enjoined from refusing to deliver; its agents and employees were equally enjoined.

The principal area of debate when this case is appealed appears to be the question of whether the employees individually can be enjoined from refusing to perform what to them is a distasteful act. If this decision turns out to be good law, a very powerful weapon often used by unions against small and medium-sized employers will have been substantially reduced in effectiveness.



The bagging machine (left) fills 50- and 75-lb. bags for shipment to 16 states and four foreign countries. The oil-fired air heater for the disc roll mill (center background) dries the rock during grinding.



Dallas Firm Features Good Maintenance Plan And Reclamation Program

Another ON THE SPOT Report

By BUREN C. HEROD

SLIGHTLY over a year ago Southwest Construction Material Company, an affiliate of Gifford-Hill & Co., Inc., went into full operation with a new 50,000-ton-per-year sand and gravel plant that is the latest addition to a group of five with which the organization is serving the expanding building and highway construction in the Dallas area.

Situated about 12 miles southeast of Dallas, the new facility was designed and erected by company personnel. Known as the Keller plant, the operation produces a wide variety of materials ranging from pit run sub-base and ballast gravels to washed and screened aggregates, concrete, and mason sands.

Among the interesting points to be found in this new operation is the attention paid to a maintenance procedure that, while extremely important to economical and efficient operating, is not commonly emphasized in operating descriptions — that of lubricating and oiling pit and pit haulage equipment. In the case of Southwest, an unusual, well equipped, and highly efficient grease truck with a two-man crew has been provided for that purpose. This unit has eliminated the need for oilers on

An overall view of the new Keller plant, seen from one of the finished material stockpiling conveyors.

two of the three pit draglines; it also services all operating equipment exclusive of the plant processing units.

The company has also exhibited its awareness of a problem to which a growing number of producers are giving active consideration—that of reclamation of depleted areas. Despite the fact that the new Keller plant is located well away from populated areas, a substantial amount of leveling in the worked-out pit section has already been accomplished. This has been done periodically as the excavating advances, and only nominal time and effort will be required to restore the surface fully.

In November, 1954, the Keller plant's pit was opened for the purpose of supplying a processing installation nearer Dallas, where the deposit was nearing depletion. Only a dry desander was installed on the new site at that time in order to remove sand prior to hauling gravel about 7 miles to the older plant.

Operations at the latter site were terminated in the following months, and by August, 1955, all equipment had been removed and installed at the new Keller location. The present plant is located near the Houston Expressway on a tract containing approximately 1,000 acres in which there are sufficient reserves for many years of operation.

Under an overburden averaging 10 to 12 ft. in thickness, the deposit has a depth of about 8 ft. throughout the area. The sand and gravel, which contains approximately 30 percent of plus ¼-in. material, is underlain by a limestone formation.

The dragline shown here is used for loading on the 10-hour day shift, and for stripping during the 10-hour night shift.

This well-equipped grease truck and a two-man crew carry out an efficient lubricating schedule in servicing all equipment other than plant processing units.

Stripping of overburden on the 10-hr. day shift is handled by a 2-cu. yd. Link-Belt Speeder K375 dragline, and a 2-cu. yd. Monighan. During the 10-hr. night shift the loading dragline, a 2½-cu. yd. Link-Belt Speeder K595, operates as a stripping unit. All three machines have Caterpillar diesel power — D13,000 engines on the two smaller, and a D17,000 on the larger—and all are equipped with Hendrix perforated buckets and Winslow oil filters.

One hour before the day shift starts, the grease truck and crew mentioned above begin the daily servicing of the pit equipment, in order to have the machines running by the time the operating crews are ready to take over. To handle complete lubrication and oiling of the various units, the grease truck is equipped with a Briggs & Stratton-powered Binks compressor, diesel fuel tank, gasoline tank, two 55-bbl. drums of oil, four 110-lb. cans of lubricant, a barrel of transmission oil, and six reels of lubricating lines.

In addition to the three draglines at the pit, the grease truck is used to service a utility yard clamshell, the three pit trucks, reservoir water pumps, and all other miscellaneous equipment other than that in the plant itself.

During the 10-hour shift, the K595 dragline loads from 2,000 to 2,600 cu. yd. of material into the haulage units for transport to the plant feed hopper. The trucks — three DW15 Caterpillar bottom-dump units—follow a somewhat circular haulage route that precludes counter traffic of loaded and empty machines.

At the plant site the pit-run material is discharged on a rail grizzly with 5-in. spacing mounted over a 10- by 20-ft., 25-cu. yd. capacity hopper. Below the latter a company-made roller feeder transfers the raw feed to a 30-in. by 120-ft. conveyor. The tail pulley of the above conveyor also serves as the drive for the roller feeder below the truck hopper. This conveyor, as well as all others in the plant, were also made in the company shops. All are fitted with Hewitt-Robins idlers and belting, with drives predominantly through Dodge torque arm reducers.

From the primary belt, the mate-

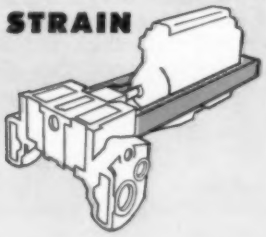
ALLIS-CHALMERS HD-21

Engineered to take the STRAIN, the SHOCK, and the GRIND of tough dozing jobs

HD-21

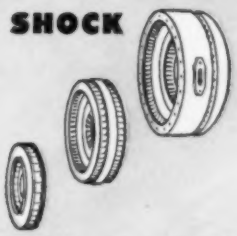
Approx. Weight (as illustrated) with hydraulic angledozer
51,845 lb
204 net engine hp

THE STRAIN



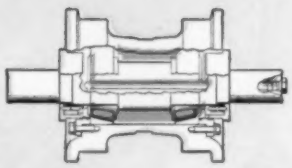
Frame-twisting stresses prove the value of the Allis-Chalmers all-steel, Box-A Main Frame. It is strong and flexible . . . soaks up strains. It is a complete unit . . . does *not* use the engine as a structural member. It allows more efficient equipment mounting, provides excellent weight distribution and makes possible unit construction for unmatched servicing ease.

THE SHOCK



Sudden overloads are common in dozer operations. But hydraulic torque converter drive cushions the shock and protects the entire power train. This drive is standard equipment on the HD-21 and has been *proved* on Allis-Chalmers tractors since 1941.

THE GRIND



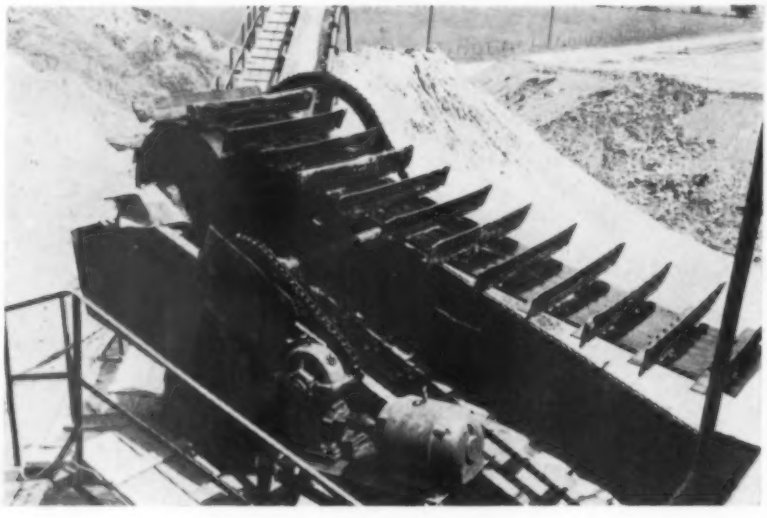
Sometimes tracks churn all day in fine, abrasive stone . . . could be a serious threat to final drives, idlers, truck wheels and support roller bearings. But this "grinding compound" never reaches the bearings on an Allis-Chalmers tractor. Exclusive design features make it possible to use tapered roller bearings with *Positive* Seals that keep dirt and moisture out and hold lubrication in for at least 1,000 hours.

ALLIS-CHALMERS, CONSTRUCTION MACHINERY DIVISION, MILWAUKEE 1, WISCONSIN

Get all the facts from your Allis-Chalmers dealer . . . now!

ALLIS-CHALMERS

The truck hopper from the desanding plant, with the reservoir for wash water (background).



This company-fabricated sand drag has proved highly resistant to abrasion. Paddles are bolted to a rubber belt 1 in. thick and 30 in. wide.

Material retained on the top deck of the separating screen (background) is processed through this log washer, while the smaller fractions are fed to a twin screw washer-dewaterer.

rial is discharged on a 6- by 16-ft. double-deck screen that operates as a desander. This screen, as well as those following in the flow, are Hewitt-Robins Vibrex units, and are largely fitted with Ludlow-Saylor screencloth. The desander is driven by a 30-hp. Allis-Chalmers motor and is equipped with 1½-in. top, and ¼-in. bottom deck screencloth. Pit run sand and gravel is churned and saturated in a box between the main belt and the Vibrex with water from the nearby reservoir by an 8- by 8-in. 75-hp. Fairbanks Morse pump. The latter also pumps to the washing and screening phases.

Plus 1½-in. gravel retained on the top deck of the desander is chuted to an underlying bin from which it may be drawn for sub-base materials or trucked to waste. Minus ¼-in. throughs passing the lower deck are sent to a sand drag for processing of concrete or mason sand. When plaster sand is desired, the flow is passed over a 6-mesh screen before it reaches the drag. Dirty wash water is pumped to waste from the desander by a 6-in. Pekor pump.

Also company-fabricated, the sand drag is regarded as a very durable unit for its use. Apparently abrasion problems have been substantially reduced due to the design, which provided for bolting the paddles to a rubber belt 1 in. thick and 24 in. wide. Sand processed through the drag is discharged onto a 24-in. belt with 61-ft. centers which in turn feeds a 24-in. by 272-ft. conveyor. This belt stacks sand in a pile 75 ft. high. A P&H 1½-cu. yd. clamshell is used to rehandle the material into separate piles.

The 1½- by ¼-in. gravel retained on the lower deck of the desander is chuted onto a 24-in. belt conveyor with 86-ft. centers, from which it is discharged over a surge pile. Incorporation of the approximately 4,000-cu. yd. surge, about 2,500 cu. yd. of which is live storage, provides independent operation of the washing and screening plants from that of the pit and desander.

From a hopper and draw gate in a reclaiming tunnel below the surge pile, the gravel is transferred to a 24-in. by 67-ft. belt conveyor and transported to the washing plant for the first phase of the final processing. As the first step, the material is discharged on a screen for separation of pea gravel from the larger sizes, and the two fractions are then fed to separate washers.

The separate screen, a double-

(Continued on page 128.)

POWER Aplenty

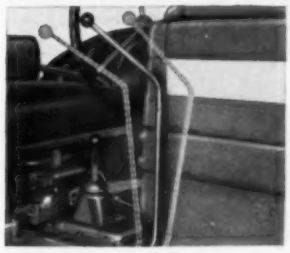
for MANY JOBS...at NEW LOW COSTS

JOHN DEERE
Crawler Tractor

Compact, powerful, and low in first cost, the "420" Crawler is built to deliver years of dependable service at very low cost per hour. Ruggedly built. Easy to start. About 30 engine horsepower. Fewer parts to wear, easily serviced, very low fuel consumption. Your choice of 4- or 5-roller frame . . . track shoes to fit your needs. Optional equipment includes smooth, fast-working single or double hydraulic system, direction reverser, new 3-point hitch for rear-mounted equipment, and 5-speed transmission. Wide choice of matched working equipment for nearly all jobs, including John Deere Loader, at left.

JOHN DEERE
Utility Tractor

This wheel-type, stay-on-the-job power unit can boost your profit margin on many kinds of work. Low in first cost, low in upkeep, remarkably low in fuel costs. Cuts "down time" to a minimum because of simple, rugged construction. Highly maneuverable. Has unusual stability when carrying loader, backhoe, or similar equipment. Built low—easy to get on and off, sure-footed on slopes. Optional equipment includes direction reverser, 5-speed transmission, and power-adjusted rear wheels. Shown with loader and backhoe.



DIRECTION REVERSER
. . . a Real Time-Saver

Optional for Crawler and Utility tractors. Lets you move forward or backward in same speed without shifting gears. Investigate—you can save as much as an hour a day in travel time on loading, dozing, and many other jobs!

. . . Now Ready for You!

Some of the Equipment Available

Loaders	Scrapers	Sweeper	Seeders
Scarifiers	Trenchers	Crane	Scoop
Backhoes	Generator	Snow Plows	Fork Lift
Dozers	Pump	Sprayers	Power Saw
Cutter-Bar Mower		Cement Mixer	Gang Mower

JOHN DEERE Industrial
Tractors and Equipment

Backed by nearly 40 years of tractor manufacture for dependable service and quality.

SEND FOR FREE LITERATURE

John Deere Industrial Division, Moline, Ill., Dept. D58A

Please send me your illustrated booklet on John Deere Industrial Tractors and Working Equipment. Include name of nearest dealer.

Name_____

Title_____

Address_____

City & State_____

Here's gravity-dumping in action! Owner of this Mid-West limestone quarry uses 3 Koehring Dumptors to haul blasted rock ¾ mile over winding road from pit to crusher (above). Dumptor drives up to hopper, body forward, dumps — one second later is on its way back to the shovel (below).

In the quarry, rock is being loaded from 25-foot limestone face by a Koehring ¾-yard shovel. Combination of Dumptors with Koehring shovels makes a dependable, high-production team! Consider the operating efficiency, economy, and time-saving convenience of standardizing on Koehring for all excavating and hauling.

CK765

Dumps in ONE SECOND

increases output 9%

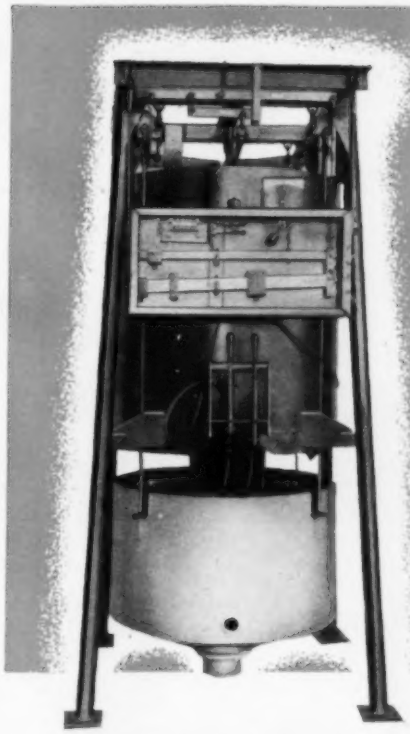
What's the dumping time of your hauling units? 15, 20, 25 seconds? That's where you can save time, get more trips an hour, by dumping in *one second* with Koehring 6-yard Dumptor. It has no slow-acting body-hoist. Operator trips the body-release lever, and *gravity* tilts the body 70 degrees. One second later the load is out, and Dumptor is on its way back for the next load. This adds up to a substantial increase in extra yards per hour. For instance —

Take a typical 1,000-foot haul, where you would normally make 16 trips an hour. By saving an average of 20 seconds dump-time on each trip, Dumptor gains 320 seconds, or 5.3 minutes more productive haul-time per hour. You get 17½ trips, instead of 16. This, alone, adds 9% to hourly production. But that's not all —

There are no expensive hoist replacement parts, hoist maintenance, or down-time delays, because *gravity-dump* never balks, never wears out. You get the same one-second dumping *every time,* under heaviest loads, in all temperature extremes. In wet materials, free-swinging kick-out pan breaks load suction — bolts down to Dumptor floor when hauling rock.

Add up your dump-time and body-hoist maintenance costs — see for yourself how much you can save by hauling with Koehring heavy-duty Dumptors. Check, too, how *no-turn* shuttle-hauling cuts another 15 to 30 seconds off cycle time. It will pay you to get the complete Dumptor® story from your local Koehring distributor. Call him *today.*

KOEHRING DIVISION
KOEHRING COMPANY
MILWAUKEE 16, WISCONSIN

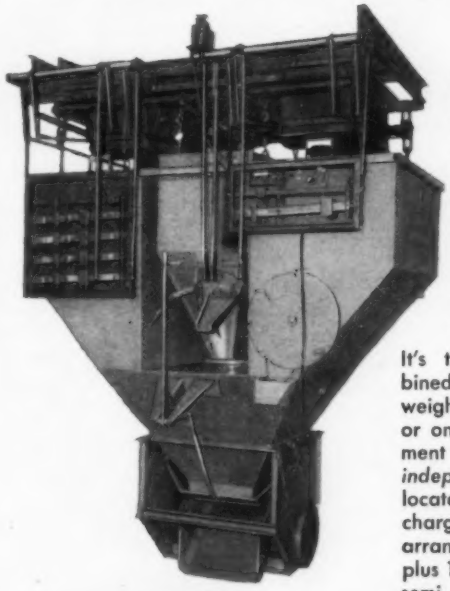


Accurate water weigh-batching

assures close quality control in production of ready-mix concrete. When water is batched by weight, accuracy is not affected by changes in water temperature — regardless of whether cold water is used in summer, or heated to 180°F. in winter. Reservoir type batchers also maintain top-speed weighing, even where low water pressure is encountered. To get this speed and accuracy in your plant, specify a Johnson water batcher.

2 sizes: 120-gallon (1,000 pounds) for batches up to 3 yards, and 240-gallon (2,000 pounds) for batches up to 6 yds. Semi- or full-automatic.

2 WAYS to increase batching efficiency



Central cement-feed

prevents "gumming", reduces dusting, and pre-shrinks materials. You get this unique advantage with Johnson Concentric batcher, because the aggregates are arranged concentrically around the cement. All ingredients are intermingled as they flow through discharge.

It's two separate batchers combined in one unit. Aggregates are weighed on accumulative dial scale, or on individual beam scales. Cement is weighed separately on an *independent scale* in a centrally-located, sealed hopper. Dual discharge available. Sizes: 2 to 8 yds., arranged for 2 to 8 aggregates, plus 1 to 4 types of cement. Manual, semi- or full-automatic operation.

Want more facts?

mail to: C. S. JOHNSON CO., Champaign, Ill. (Koehring Subsidiary)

Send us literature on: ■ Water batchers ■ Concentric batchers

NAME _____ TITLE _____

COMPANY _____

STREET _____

CITY _____ STATE _____

V2 PO

In the foreground is a part of the former pit location, which has been leveled. Between this point and the present operations (background) an area not yet restored can be seen.

Jake Elliott, superintendent of pit and plant operations, standing at the weighing station.

S.W. Construction

(*From page* 124)

deck, 4- by 6-ft. Vibrex, is fitted with ⅝-in. and ⅜-in. opening screencloth on the upper and lower decks, respectively. Material retained on the top deck is fed to a twin log washer, while that retained and passing the bottom deck is fed to a twin-screw washer-dewaterer. Both washers are products of Eagle Iron Works.

Washed materials discharged from both units are received on a 24-in. by 120-ft. belt conveyor and transported to the screening plant, where they are discharged on a 5- by 12-ft. triple-deck screen mounted above four truck loading bins. The decks are fitted with ¾-in., $\frac{5}{16}$- and ⅝-in., and 8-mesh screencloth on the top, middle, and bottom, respectively. The 8-mesh bottom deck accomplishes final dewatering.

Concrete materials, a blend of products from 1½- by ¾-in. to plus 8-mesh, are chuted from the finishing screen to two of the underlying bins, while the remaining two bins accommodate the fractions separated on the lower two decks of the screen. Each of the four loading bins has a capacity of 45 cu. yd. When these are full, each of the screen products is diverted to one of three 24-in. belt conveyors emanating from the screen tower, and transported to discharge over its own stockpile.

Rehandling of the various stockpiled products is done with a 1½-cu. yd. P&H clamshell crane; and a 1½-cu. yd. Hough Payloader is used for direct loading of trucks from stockpiles. The plant's products are trucked by a contract hauler, the trucks being weighed out over a Thurman 50-ton portable scale.

C. L. Crocker, former superintendent at the older Keller plant, is in charge of office operations at the new location. The 26-man day crew and 2-man night stripping operations are headed by Jake Elliott.

Industry Personalities

At the annual meeting of the Portland Cement Association GEORGE E. WARREN was elected chairman of the board of directors. Mr. Warren, president of the Southwestern Portland Cement Company, Los Angeles, has served on the board of directors since 1953 and as a member of the executive committee for the last year.

Mr. Warren succeeds EMORY M. FORD, chairman of the Huron Portland Cement Company, Detroit, Mich.

The following were among the new directors named: C. F. LEWIS, president and manager of the Volunteer Portland Cement Company, Knoxville, Tenn.; BEN W. CALVIN, president of the Aetna Portland Cement Company, Bay City, Mich.; and WALTER K. FARST, general manager of the Columbia Cement division of the Pittsburgh Plate Glass Company at Fultonham, Ohio.

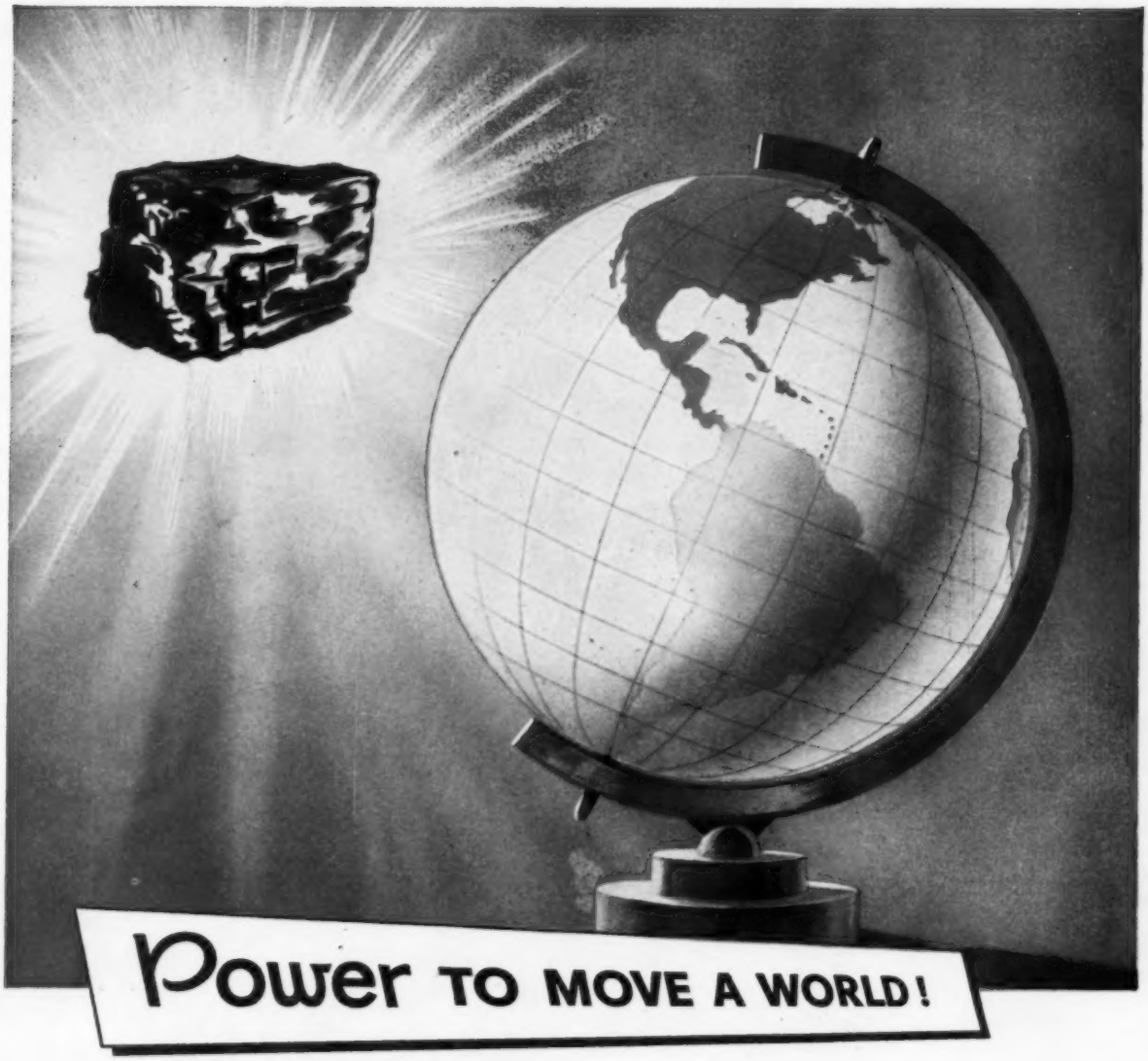
Kelley Island Division of Basic Incorporated, Cleveland, Ohio, has announced a major personnel change at its Buffalo plant, 724 Ohio St., where Basic produces high-calcium lime for the steel, paper, and chemical industries.

ALBERT W. BUSCH has been succeeded by JERRY F. JANKOVIC as superintendent of the Buffalo operation. He will, however, remain available on a consulting basis for this Kelley Island Division plant. Mr. Busch retired because of health reasons. Mr. Jankovic has served as assistant superintendent for the last two years and plant engineer for the preceding three years.

L. E. BANCROFT, executive vice-president of the California Portland Cement Company, Los Angeles, Calif., has retired after 38 years with the company. Mr. Bancroft will retain the position of vice-president and will remain a member of the board.

RICHARD A. GRANT, vice-president and assistant to the president of California Portland Cement, succeeds Mr. Bancroft as executive vice-president. Mr. Grant is also a member of the board.

FRED A. WEIBEL, president of the Allentown Portland Cement Company, Allentown, Pa., was recently elected vice-president of the National Society for Crippled Children and Adults, Inc.



Power TO MOVE A WORLD!

➔ America stands on the threshold of a golden age. The sinews of her dynamic economy are flexed as never before. Increased power for untold requirements will be needed . . . and *met* by the most dependable supply of low-cost energy—*Bituminous coal!*

Proven usable reserves in B&O territory contain billions of tons—*available for centuries to come.*

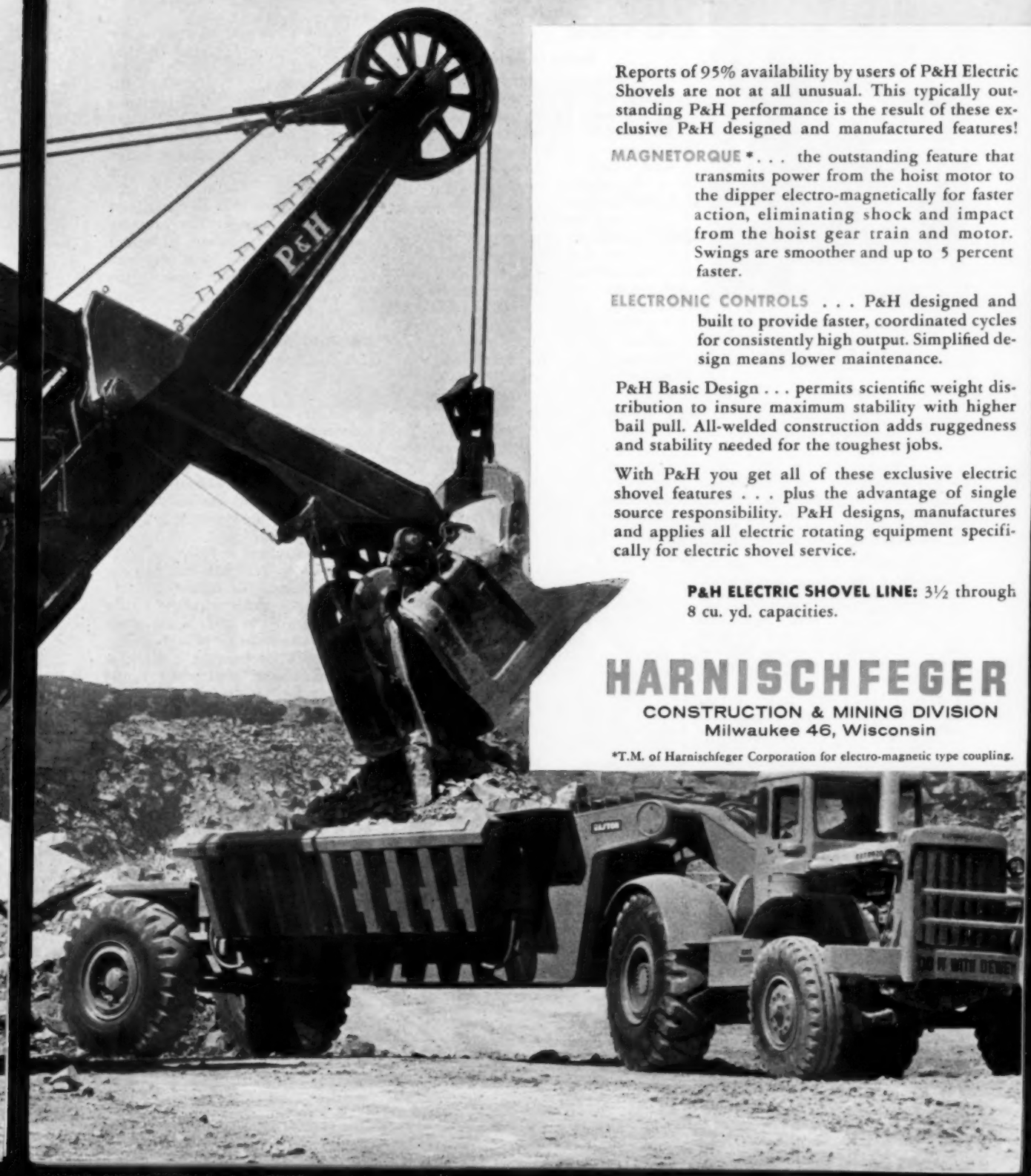
CONTACT OUR COAL TRAFFIC REPRESENTATIVES!
You'll receive details on the most efficient, low-cost Bituminous coal for your particular requirements—
COAL TRAFFIC DEPARTMENT
B&O RAILROAD, BALTIMORE 1, MD. LExington 9-0400

Baltimore & Ohio Railroad

P&H Electric Shovels

Illustrated is a P&H 1600—6 cu. yd. Electric Shovel. This is the third P&H Electric Shovel purchased by Dewey Portland Cement Company and one of six P&H machines used at their Davenport plant.

give you 95% Availability



Reports of 95% availability by users of P&H Electric Shovels are not at all unusual. This typically outstanding P&H performance is the result of these exclusive P&H designed and manufactured features!

MAGNETORQUE* . . . the outstanding feature that transmits power from the hoist motor to the dipper electro-magnetically for faster action, eliminating shock and impact from the hoist gear train and motor. Swings are smoother and up to 5 percent faster.

ELECTRONIC CONTROLS . . . P&H designed and built to provide faster, coordinated cycles for consistently high output. Simplified design means lower maintenance.

P&H Basic Design . . . permits scientific weight distribution to insure maximum stability with higher bail pull. All-welded construction adds ruggedness and stability needed for the toughest jobs.

With P&H you get all of these exclusive electric shovel features . . . plus the advantage of single source responsibility. P&H designs, manufactures and applies all electric rotating equipment specifically for electric shovel service.

P&H ELECTRIC SHOVEL LINE: 3½ through 8 cu. yd. capacities.

HARNISCHFEGER

CONSTRUCTION & MINING DIVISION
Milwaukee 46, Wisconsin

*T.M. of Harnischfeger Corporation for electro-magnetic type coupling.

DURACLONE

. . . . First Choice of Sand Producers

● Last year, Marin Rock & Asphalt Co., Novato, Calif., changed over from dry road-material production to washed and sized aggregates.

● *Loss of extremely fine sands in the classifier overflows made it difficult to meet rigid state specifications—until the management installed two 25-in. DURACLONES.*

● Now, handling about 2400 g.p.m. by way of two 4-in. RU rubber-lined pumps, upwards of 50 tons of clean fines are being recovered daily to "sweeten" the sand gradation, insuring marketability, and saving money.

● *DURACLONES are specifically engineered for this service in the sand-and-gravel industry. More DURACLONES are being installed by aggregate producers than any other type of wet cyclone—proof of their remarkable ability to wring the last ounce of fine, clean sand from wash-water wastes.*

● Completely rubber-lined, DURACLONES are sold on a guaranteed-performance basis when installed as directed. If your finished sand is deficient in the minus-50-mesh range, a DURACLONE can probably correct the trouble. In addition, the market value of the sand you save will quickly pay for it. Send the coupon below for information, NOW!

H. B. Large Engineering Co.
262 S. Parkwood Ave.
Pasadena, Calif.

Please send DURACLONE information to:

NAME_____

ADDRESS_____

OUR OVERFLOW WATER IS APPROXIMATELY

_____G.P.M.

Legal Decisions

By LEO T. PARKER
Attorney at Law
Cincinnati, Ohio

Delay is Fatal

Not long ago a quarry owner wrote, stating that he was having difficulty with a land owner from whom he leased land. The land owner wanted additional payment for use of certain land which he contended was not in the original lease. The quarry owner wanted to know his legal rights, and said that the land owner had made no objection for a long time after they had signed the lease.

Last month a higher court rendered an important decision which seems to indicate that the longer a property owner delays in filing a suit on the contention that a lease contract is not being interpreted correctly by the leasee, the better the latter's chances are to win the suit.

For example, in *Steere v. The Green Limestone Company,* 77 N. W. (2d) 925, the testimony showed facts, as follows: One Steere, the owner of a farm, leased to the Green Limestone Company for a term of five years a tract of land to be used as a limestone and rock quarry. The contract was in writing, but the land leased was described as "a certain agreed acreage." In other words, the written contract was not complete, and the exact area of the leased land was agreed upon orally between Steere and The Green Limestone Company. The contract, otherwise completed in detail, specified that the land was to be used by The Green Limestone Company "for the purpose of quarrying, crushing, screening, processing, storing, offering for sale, and selling agricultural lime, crushed stone, or any other product on the tract."

The Green Limestone Company at once began operations on various parts of the premises including land north of a certain fence. Steere offered no objections. Three years later he filed suit and asked the court to grant an injunction to prohibit the company from quarrying land north of the fence. During the trial officials of the Green Limestone Company testified that the oral agreement covered the ground lying north of the fence.

It is interesting to observe that the higher court held that the lease included land north of the fence, and said:

"We think that the weight of the evidence is that the controversial fence, which plaintiff (Steere) claims was the north line of the tract leased, was removed early in defendant's (The Green Limestone Company's) operations there; and that they had quarried for a considerable time north of the line before any protest was made."

It is apparent that in disputes of this kind the longer the property owner delays filing a suit to prevent the leasee from "working" the land in dispute, the better becomes the leasee's chances of winning a favorable verdict.

Law of Attractive Nuisances

A few weeks ago a higher court rendered an important decision which answers questions often asked by readers as follows: "How can a contractor know what constitutes an attractive nuisance and eliminate chances of paying large damages to parents of children who are injured on machinery and the like left by contractors on the streets, in lots, and in other places?"

For illustration, in *Joseph v. Lindstrom,* 77 N. W. (2d) 707, the testimony showed the following facts: A contractor had contracted with a property owner to apply an imitation stone to the exterior of a building. The contractor brought a machine referred to as a "mud mixer' to the premises for mixing stone to be applied to the building. In close proximity to the machine was a sand-pile and a sifting screen, bags of cement, and a water barrel. The machine was run by a gasoline engine with a stationary drum having revolving blades or fins. When operation of the machine was begun, the neighborhood children gathered about. It is important to observe that this contractor did not order the children to leave, nor did he warn them of the dangers of the machine.

A boy named Joseph stuck his hand in the drum of the machine and was severely injured. The higher court promptly held the contractor liable in heavy damages to the boy's parents and said:

"That operation of the machine

How LINK-BELT'S complete screw conveyor service

saves you time
spares you details

Here's a single, all-inclusive source for standard or special requirements

This four-point program provides quick and easy answers to any screw conveyor problem. Link-Belt offers you the widest range of component types and sizes. For example, you choose from 17 basic screw designs—in any suitable metal to meet temperature, corrosion, sanitation, abrasion and other requirements . . . in a full range of diameters, gauges and pitches. Whatever you need in components . . . and to whatever extent you require engineering counsel — Link-Belt will devise a system "tailored" to your specific needs. Ask your nearby Link-Belt office or authorized stock-carrying distributor for 92-page Data Book 2289.

◀ **SCREW CONVEYORS** are readily adaptable to inclined (left), horizontal or vertical handling of bulk materials.

1. **ANALYSIS AND ENGINEERING** service is provided by a district sales office in your area. Link-Belt district engineers can quickly ascertain the best conveying arrangement for your specific application.

2. **COMPLETE LINE OF SCREW CONVEYOR COMPONENTS** and related elevating, conveying and power transmission equipment is your assurance that specific needs will be fulfilled most efficiently and economically.

3. **EASY ERECTION** is achieved because of prefitting, match marking, close-tolerance manufacturing and layout drawings. Link-Belt will handle entire erection assignment if you wish.

4. **SATISFACTORY PERFORMANCE** is assured when you rely on Link-Belt as a single-contract source for your complete system. We will accept full responsibility for placing it in operating readiness for you.

LINK-BELT

SCREW CONVEYOR EQUIPMENT

LINK-BELT COMPANY: Executive Offices, Prudential Plaza, Chicago 1. To Serve Industry There Are Link-Belt Plants, Sales Offices, Stock Carrying Factory Branch Stores and Distributors in All Principal Cities. Export Office, New York 7; Canada, Scarboro (Toronto 13); Australia, Marrickville, N.S.W.; South Africa, Springs. Representatives Throughout the World. 14,288

LINK-BELT'S COMPLETE LINE OF INTEGRATED COMPONENTS INCLUDES:

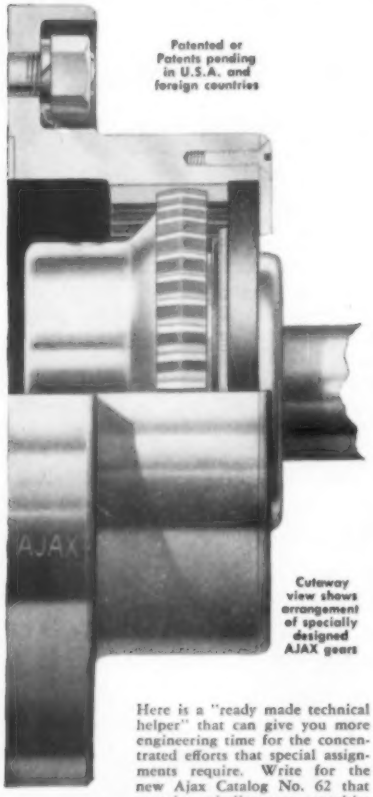
SCREWS · HANGERS · TROUGHS · SPOUTS & GATES · SHAFTS & COUPLINGS · TROUGH ENDS · DRIVES

AJAX

Self-aligning

DIHEDRAL COUPLINGS

Give Design Engineers An Immediate Source of Product Improvement



Cutaway view shows arrangement of specially designed AJAX gears

Here is a "ready made technical helper" that can give you more engineering time for the concentrated efforts that special assignments require. Write for the new Ajax Catalog No. 62 that contains misalignment capacities of every coupling size and type in the complete line of Ajax Dihedral Couplings. Why spend valuable time duplicating data already established by thousands of proven, field tested applications.

Ajax Dihedral Couplings handle unavoidable shaft misalignment, angular and offset, up to a total of 12°. Teeth can be cut to handle greater misalignment capacities on special order.

Get the facts on how manufacturers of presses, machine tools, rolling mills, cranes, earth moving and many other direct connected machines are simplifying design, cutting manufacturing costs and improving product performance with Ajax Dihedral Couplings.

Write today for your personal copy of Bulletin No. 62.

AJAX FLEXIBLE COUPLING CO. INC.
WESTFIELD, NEW YORK

and all the accessories to its operation — sandpile, hose, and water — were attractive to the children was shown by the evidence that they gathered around watching the machine and playing with the sand, the shovels, and the hose."

For comparison, see *Giessel v. Columbia County,* 250 Wis. 260. In this case the testimony showed that the operator of a machine told the children to get off and stay away from the machine, which they did. Later, however, a child mounted the machine where he could not be seen by the operator and was injured.

In subsequent litigation, the higher court held the parents of the injured boy not entitled to recover damages because the operator of the machine had ordered the children to go away and stay away from the machine.

For further comparison, see *James v. Wisconsin Power Company,* 63 N. W. (2d) 116. This court explained that the attractive nuisance doctrine imposes liability for injuries to children of tender years, even though they are trespassers, when such injuries are the result of the failure of the contractor in charge to take proper precautions to prevent injuries to children by instrumentalities or conditions which he should, in the exercise of ordinary judgment and prudence know would naturally attract them into unsuspected danger.

This rule of law is applicable, also, to machinery and appliances left unattended on a lot owned by the contractor, when the lot is located in an area or neighborhood where children are accustomed to play.

Fraud in Selling

An official of a sand and gravel company wrote of this problem: "Recently our corporation purchased a small sand and gravel business including the real property, relying on the seller's statement that operation of the business was netting about $600 a month. We expended $17,000 in making improvements, and even then operation of the business netted only $275 a month. What are our legal and lawful rights? Can we revoke this purchase contract without financial loss?"

Modern higher courts consistently hold that if a seller of a sand and gravel business falsely induces a purchaser to buy the business, he is liable for full damages sustained by the purchaser.

For example, in *Lobd v. Miller,* 250 Pac. (2d) 357, the higher court held that proof that a seller of a business made one misrepresentation is sufficient to justify the purchaser's recovering full damages from the seller. The testimony showed facts as follows: A man named Lobd purchased one Miller's business. The sale price was $38,000, payable as follows: The conveyance to Miller of a duplex at an agreed price of $10,000—$5,000 in cash, and the balance of $23,000 payable in installments.

Lobd proceeded to spend $26,605 in improving the property. After finally opening the premises for business, Lobd was disappointed to realize that the income was not "at least" $700 per month. Two years after Lobd had purchased the property, he sued Miller for damages and asked the court to cancel the purchase contract. Lobd proved that Miller had stated that the monthly income from operation of the business was $700 and that there was plenty of water from a spring on the real estate to serve the premises without the necessity of getting water elsewhere. Lobd also proved that the income had not been $700 per month from the operation of the business, and that during the summer the quantity of water from the spring was not enough to supply the premises adequately.

The higher court decided that Lobd could rescind the contract, and that Miller must take the property back and pay Lobd all the money he had spent for repairs; must cancel the amount due on the purchase price; and must repay the cash paid by Lobd on the deal.

In other words, Miller was held liable to Lobd for $64,854 for damages, which included the $26,605 Lobd had spent for repairs, and $16,523 he had lost while operating the property. The court said:

"The evidence conclusively shows (a) that the defendant (seller) represented to the plaintiff (Lobd) during the negotiations for purchase and at the time of sale, that the business was making and had made $700 per month. Some of the testimony indicated this was a net return and other testimony indicated that it was a gross return. The evidence clearly shows that in either case this fact was false. . . . Since there was one material misrepresentation justifiably relied on by the plaintiff (Lobd), it would ordinarily not be necessary to discuss other claimed misrepresentations."

Paint Trucks In Contrast

According to a late higher court decision, the owners of motor trucks should paint the truck a color "in contrast" with the roadway. By do-

ing so damage suits arising from collisions may be won.

For illustration, in *Guerin v. Forburger Company,* 74 N. W. (2d) 871 the lower court held that a motorist who drove his automobile after dark, without good lights and so close to a motor truck loaded with white stone that he could not avoid a collision with the rear of the tractor trailer when it suddenly stopped, was guilty of contributory negligence which precluded recovery for his death.

However, the higher court reversed the verdict holding that there are exceptions to the general rule that it is negligence for a motorist to drive on the highway in such manner that he cannot stop in time to avoid a collision with a truck within the range of his vision. This higher court held that if a truck is the same color as the roadway, and, therefore, cannot be observed if a motorist exercises ordinary care in time to avoid a collision, the collision is the fault of the truck owner. The court said:

As a general rule, it is negligence as a matter of law for a motorist to drive an automobile on a highway in such a manner that he cannot stop in time to avoid a collision with an object within the range of his vision. There are exceptions where the object is the same color as the roadway."

Unfair Verdict

A few weeks ago a higher court rendered an important decision to the effect that a jury's verdict is void if it awards less than actual damages. This court also held that a purchaser's down payment to a seller, as a measure of damages, is a well-accepted basis of compensation to the buyer who proves that the seller breached his contract.

For example, in *Smith v. National Engineering & Manufacturing Company,* 286 S. W. (2d) 73, it was shown that one Smith purchased for $6,200 certain steel forms intended for use in the construction of concrete dwelling houses. Smith paid the seller $1,550 in cash, and executed two promissory notes, the face amount of one note being $4,696, the other $847.75. Later Smith filed suit to recover the $1,550 down payment from the seller on the grounds that the latter had breached his agreement to deliver the steel forms practical for use in the construction of concrete homes.

After listening to all the testimony, the jury decided that the seller had breached the contract and rendered a verdict of $200 damages to Smith. The latter appealed to the higher

AKINS...FIRST IN EXPERIENCE

used since 1908 for efficient, low-cost classification

TYPICAL CASE HISTORY

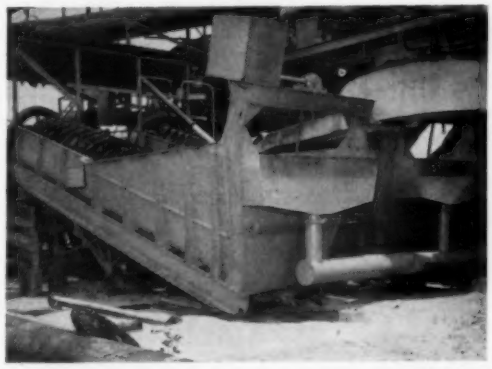
Pioneering in Phosphate

In cooperation with the phosphate mining companies, Colorado Iron Works engineers applied their specialized classification experience in helping to solve the problems associated with developing efficient treatment of phosphate ores. Akins dewatering, deoiling and desliming classifiers were among the first used in this field. Having proved their efficiency Akins Classifiers predominate the phosphate field.

1944

...2 Akins for Swift and Company's Watson Mine, one of first classifier installations on phosphate.

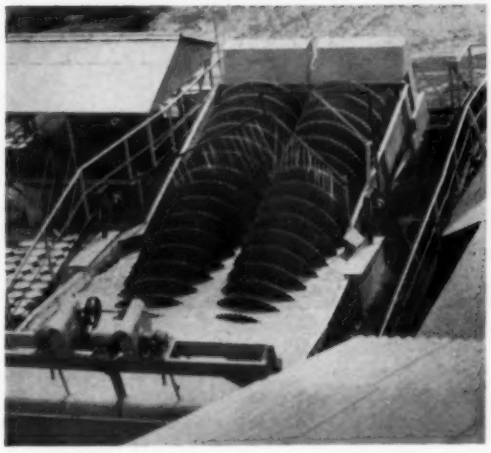
These 2—54" Akins Simplex Classifiers, installed in 1944, and 2 others purchased later, are dewatering and desliming +150, —35 mesh flotation feed.



1956

...8 Akins at Armour Fertilizer Works' New Plant, Bartow, Florida.

This recent installation includes 1—78" Duplex Akins, 1—66" Duplex Akins, 1—60" Duplex Akins, 1—66" Simplex Akins, and 4—60" Simplex Akins. They are being used for dewatering flotation feed, flotation concentrate, belt feed, belt concentrate, and for primary and secondary deoiling.



There are now 28 Akins operating successfully in 8 phosphate plants

AKINS...the Original Spiral Classifier*

*A Registered Trademark of C.I.W.

COLORADO IRON WORKS CO.

A SUBSIDIARY OF THE MINE AND SMELTER SUPPLY CO.

DENVER, COLORADO

SPECIALISTS IN CLASSIFICATION FOR 48 YEARS

What can a PAYLOADER® do for you?

Versatility — the ability to do *many* earth and material handling jobs — and *mobility* — the speed and ease with which they get *to* the job, are big reasons for the success and acceptance of rubber-tired tractor shovels at pits, mines, quarries and plants. And among rubber-tired tractor shovels, none can match the versatility, mobility and productive capacity of the new four-wheel-drive "PAYLOADER" units, size for size.

More-reliable traction . . . easier, faster and safer operation . . . greater digging power . . . more carrying capacity, are some of the many outstanding improvements in these four-wheel-drive units that are making friends every day among operators who know tractor-shovels best.

Your "PAYLOADER" distributor wants you to prove on your own work that these new "PAYLOADER" models are the most useful, productive and profitable tractor shovels you can own.

It can load from the pit or from the stock pile into trucks, gondolas, wagons, bins.

It can dig payloads of large-size rock . . . thanks to powerful 40° pry-out, breakout bucket action.

It can strip overburden, spread, windrow or stockpile . . . carrying its bucket loads where needed.

It can feed hoppers or conveyors . . . travel fast with heaped loads carried low and close.

Full of "MORE YARDAGE" features

Exclusive power-transfer differentials provide sure-footed traction on mud, gravel, ice and snow.

Hydraulic load-shock absorber cushions the loaded bucket, smooths the ride—permits higher carry speeds with less spillage.

No-stop power-shift transmissions can make ALL shifts on-the-go, under full engine speed. No stopping for RANGE SHIFTS . . . no "clutching".

Powerful 40° bucket pry-out, break-out action . . . Rugged planetary final drives . . . Power steering . . . 4-wheel power brakes.

PAYLOADER®

MANUFACTURED BY
THE FRANK G. HOUGH CO. LIBERTYVILLE, ILL.
SUBSIDIARY—INTERNATIONAL HARVESTER COMPANY

Owners expect more from a "PAYLOADER" and they get more because more of them are in service than all other makes combined. They're designed right and built right . . . they're sold and serviced right by a nearby "PAYLOADER" distributor.

THE FRANK G. HOUGH CO.
750 Sunnyside Ave., Libertyville, Ill.

Send data on 4-wheel-drive "PAYLOADER" tractor-shovels as checked.

- ☐ HO (2¼ yd. payload, 1¾ yd. struck)
- ☐ HH (1¾ yd. payload, 1½ yd. struck)
- ☐ HU (1½ yd. payload, 1 yd. struck)

Name _____

Title _____

Company _____

Street _____

City _____ State _____

37

720 TONS . . . AN HOUR'S HAUL WITH THIS SAUERMAN TOWER EXCAVATOR

Pioneer's giant excavator is the largest power scraper installation in the sand and gravel industry.

Pioneer Sand and Gravel Co., Seattle, Wash., needs a huge flow of material to supply its ready-mix plants and barges. They're getting it with a 12-cu. yd. Crescent Scraper.

The Crescent handles 480 yds. or 720 tons per hr. over an average haul from 300 to 350 ft. It operates along a 675-ft. span between movable head and tail towers located at the base and top of the 240-ft. high bank.

In addition to high rate of delivery, adoption of the Sauerman Method provides two other advantages over the 5-cu. yd. power shovel that formerly operated off the "toe" of the bank. These are: (1) material can now be taken from anywhere on the bank for blending and selection of gravel, and (2) material can be moved down the slope with no danger of cave-ins.

The tower excavator at Pioneer is mounted on portable towers and engineered by Sauerman for economical excavation in this type of deposit. This same digging tool . . . the Crescent scraper . . . can be engineered to your operation to give you equivalent high production at low cost.

Sauerman Scrapers range from ⅓ cu. yds. up to 18 cu. yds.

Because in most cases it is cheaper to drag material than it is to lift and transport it, *they give you the lowest cost per cu. yd. handled.*

Contact us for information and specific recommendations. Ask for field reports and Catalog A.

This view gives some conception of the height and steepness of the bank on which the Crescent works.

The Crescent delivers to a portable field hopper from which belt conveyors transport the material to the plant.

SAUERMAN BROS. INC.

634 S. 28th AVE. | BELLWOOD, ILL.

Crescent Scrapers • Slackline and Tautline Cableways • Durolite Blocks

court, which promptly reversed the verdict, saying:

"The first verdict for $200 was entirely unresponsive to the issues and could not support a valid judgment. The judgment is reversed and the cause remanded with directions to the trial court to reinstate the verdict for $1,550 in favor of the plaintiff (Smith)."

For comparison, see *Weisels-Gerhardt Real Estate Company v. Pemberton Investment Company,* 131 S. W. 353. Here a verdict was returned by a jury for exactly 50 percent of the amount of damages suffered by the complaining party. The court said:

". . . In actions on contracts in which the plaintiff (purchaser) is entitled to recover his full claim or nothing whatever and the jury awards a lesser amount, the jury either wholly disregarded the evidence, misapprehended its effect, or overlooked some important fact, or necessarily found some fact in favor of defendant (seller) which is wholly inconsistent."

And again, see *Bigh v. Schneider,* 157 S. W. (2d) 547. One Bigh sued a seller for $300, yet, for unknown reasons, the jury returned a verdict for only $175. The judgment was reversed by the higher court, which stated that since the amount of the verdict was inconsistent with the contested issues, it was a nullity.

And in *Cap-Keystone Company v. Tallman Company,* 180 S. W. (2d) 802, the verdict of a jury was for less than the full amount of damages sustained by the complaining person. The court held:

"It is obvious that a judgment entered upon a verdict given in such utter disregard of the evidence cannot be permitted to stand."

No Labor Dispute

According to a late higher court decision, union members cannot lawfully picket a quarry if the owner has no valid labor dispute with his employees.

For example, in *Local Union No. 135 v. Merchand Company,* 132 N. E. (2d) 715, it was shown that Local Union No. 135 had membership applications of all persons at one time employed by the Merchand Company. However, for undisclosed reasons the union failed to ask for an election designating it as the bargaining agent, and the matter remained quiescent. Later all employees holding union cards voluntarily left the employ of the Merchand Company and thereafter the union, without having made any effort to organize subsequent employees

TIMKEN® multi-use bits give Oman Construction Co. lowest cost per foot of hole in drilling limestone

LOCATION: Industrial plant site, Nashville, Tenn.

DRILLING CONDITIONS: Medium hard limestone.

IN wagon drilling limestone on a 232-acre plant site in Nashville, Tennessee, Oman Construction Company got the lowest cost per foot of hole by using Timken® multi-use rock bits.

You can get similar savings with Timken multi-use bits. With correct and controlled reconditioning, they give the lowest cost per foot of hole when full increments of steel can be drilled in ordinary ground.

But multi-use bits may not be best for all drilling conditions. When you drill in hard, abrasive ground, Timken carbide insert bits are your best bet. With them you get higher speeds and greater economy on extremely deep hole, constant-gauge hole or small diameter blast hole work.

And your drillers save time changing bits when using Timken multi-use and carbide insert bits. They're interchangeable in the same thread series. Dozens of different Timken bits fit the same drill steel. They can be changed quickly and easily as the ground changes. Right on the job.

What's more, Timken rock bits give you these extra advantages: 1) they're made from the Timken Company's own electric furnace fine alloy steel; 2) they have special shoulder unions developed by the Timken Company that protect threads from drilling impact. Let us help you select the best type of bit for your jobs—cut your drilling costs. Write: The Timken Roller Bearing Company, Rock Bit Division, Canton 6, Ohio. Cable address: "TIMROSCO".

TIMKEN

TRADE-MARK REG. U. S. PAT. OFF.

your best bet for the best bit for every job

Timken threaded multi-use rock bit

Timken threaded carbide insert rock bit

FOR REMOTE CONTROL JOBS on a great variety of CONSTRUCTION EQUIPMENT

TRU-LAY *Flexible* PUSH-PULLS

are Dependable and Accurate even under the most adverse conditions. They perform effectively under extremes of Heat or Cold . . . from jet engine temperatures to 70° below zero F. The inner, working member (lubricated for life during assembly) is fully protected by the tough, flexible conduit. Abrasive dusts, dirt and moisture are sealed out. Fittings are cold swaged to make them integral parts of the control unit. It is a matter of record that we have never heard of a TRU-LAY *flexible* PUSH-PULL wearing out in normal service. Use of these versatile, simple and rugged controls means the virtual Elimination of Maintenance.

Widely Used on Construction Equipment

Adaptability to all sorts of mechanical situations explains, in large measure, the wide-spread use of TRU-LAY PUSH-PULLS on Tractors and their accessories, Power Shovels, Winches, Road Graders, Road Oilers, Dump Trucks, Snow Plows, Engine-driven Pumps, Rock Crushers, etc.

On Construction Equipment these dependable Push-Pulls are used for the remote control of Hydraulic and Air Valves, Brakes, Clutches, Transmissions, Throttles, Chokes, Governors, Power Take-Offs, and on many other applications.

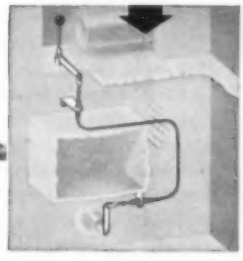
TRU-LAY PUSH-PULLS are precision products, not gadgets. They provide positive remote-action whether anchorages are fixed or movable . . . for light loads or loads up to 1,000 lbs. . . . and they are effective over short or long distances up to 150 feet or more.

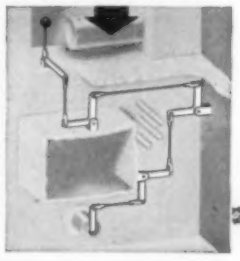
For full details, write for DATA FILE.

***Advantages** of Tru-Lay Push-Pull flexibility and simplicity are pictured below*

TRU-LAY PUSH-PULL
Simple • One Moving Part
Life-Time Service • Life-Time Accuracy • Low over-all Cost
Noiseless

MECHANICAL LINKAGES
Complex • Many Parts
Many Points of Wear • Increasing Back-Lash • Loss of Accuracy • Vibration Rattles





"Solid as a rod but *Flexible* as a wire rope" is a good description of TRU-LAY PUSH-PULL REMOTE CONTROLS. This flexibility makes it possible to snake around obstructions as shown in the picture at the left . . . permits the ideal arrangement of all control elements . . . greatly simplifies installation of controls by reducing the number of working parts . . . damps out noise and vibration. Versatile, Accurate, Adaptable, Rugged . . . they are the ideal remote controls for Construction Equipment.

Our DATA FILE will answer your further questions
Write for a copy without obligation

ACCO

AUTOMOTIVE and AIRCRAFT DIVISION
AMERICAN CHAIN & CABLE

601-K Stephenson Bldg., Detroit 2
2216-K South Garfield Ave., Los Angeles 22 • 929-K Connecticut Ave., Bridgeport 2, Conn.

by contract and persuasion, placed a picket line at the entrance of the place of business of the Merchand Company.

In subsequent litigation, the lower court held that there was no "labor dispute" within the meaning of the law; therefore, the lower court issued an injunction against the picketing. The court said:

"We think the clear implication of the signs carried by the pickets charged the appellee (Merchand Company) with refusing to hire members of the union. There is no basis for such accusation."

With respect to the right to picket, the court said:

"We are aware that it is universally held by the courts of this country that the right to picket involves the right of free speech guaranteed by the Constitution of the United States, Amend. 1. Such constitutional guaranty, however, does not protect falsity or misrepresentation."

For comparison, see *Karges Company v. Amalgamated*, 75 N. E. 877. This court held that an employer whose business existence is threatened by the violence of a union might have the aid of the court to preserve himself from the damage.

Yielding Right-Of-Way

Another reader of PIT & QUARRY wrote as follows: "Our driver seriously injured a pedestrian when driving from the street into our lot. At this time this pedestrian was walking on the apron which extends from the street to the sidewalk. Can he sue us and get damages."

According to a late higher court decision, the answer is no.

For instance, in *Brunette v. Bierke*, 72 N. W. (2d) 702, it was shown that a dealer constructed a concrete apron from the street leading into his parking lot. One day a pedestrian was seriously injured when he was struck by an automobile while walking upon the apron of the sidewalk.

In subsequent litigation, the higher court held that the pedestrian could not recover damages for his injuries because the testimony showed that he failed to yield the right-of-way to the automobile while walking on the apron. The higher court said:

"The apron was open to the use of the public as a matter of right for the purposes of vehicular travel; its very purpose was to provide a convenient approach by motorists. It would be absurd to contend that the apron was constructed for any purpose other than to accommodate the motorist."

here's the Biggest News in the Rock Products Industry

This revolutionary multi-wall is a real advancement in the science of bag closure. Unlike ordinary multi-wall pasted valve bags, the Arkell & Smiths "Step-Flex" Bag is triple-sealed top and bottom to eliminate sifting of fine materials. The plies forming the multi-wall construction are staggered on the ends, and each ply on one side of the bag is pasted to the corresponding ply that it overlaps on the opposite side of the bag . . . . . at both top and bottom.

This improved construction forms a positive sift-proof seal and actually makes the top and bottom of the bag even stronger than the walls!

Since the size of the orders for this new bag are increasing daily, we recommend that you let us know your requirements immediately! Write, wire or phone today.

P.S. There is no upcharge for the triple-sealed "Step-Flex" Bag.

Cement Chemicals Fertilizer

ARKELL AND SMITHS

Executive Offices: 500 Fifth Ave., New York 36

Manufacturing Plants at:

Canajoharie, N. Y. • Wellsburg, W. Va.
Mobile, Ala. • Hudson Falls, N. Y.

"The Oldest Name in Paper Bags"

Plaster Lime Clay Talc

FOR ADDITIONAL INFORMATION, WRITE TO ARKELL & SMITHS, PACKAGING DIVISION, CANAJOHARIE, NEW YORK

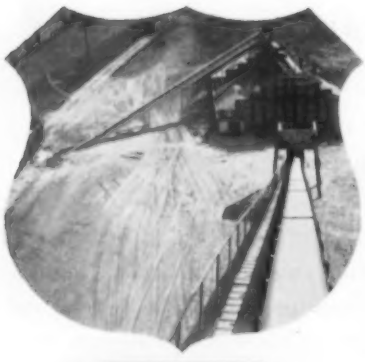
Gear up to GO!

—with the nation's greatest all-time road-building program

with

Continental

Conveying Equipment



Now is the time to check your requirements — gear your operations to help handle the huge quantities of aggregates that will be needed in the nation's $51 billion road building program that's getting under way.

Rugged Continental conveyor systems have earned an outstanding reputation in the rock products field for withstanding hard usage under peak load conditions.

Don't Wait Too Long!

Arrange now to have Continental's engineers survey your requirements and submit recommendations. Phone or write our nearest office.

CG-5701

INDUSTRIAL DIVISION
CONTINENTAL GIN COMPANY
BIRMINGHAM, ALABAMA

CGC — ATLANTA, CLEVELAND, DALLAS, KNOXVILLE, MEMPHIS, MOBILE, NEW YORK 17

Exploding Truck Tires

Several times during the last few years I have been asked this legal question: "Is a tire manufacturer liable for injuries to a truck driver caused by a tire exploding while he is mounting it on his truck?"

Fortunately, I located a new higher court decision which answers this question.

In *Hewitt v. General,* 284 Pac. (2d) 471, a man named Hewitt was severely injured when a heavy truck tire exploded as he was mounting it on a motor truck wheel. Hewitt sued the manufacturer for heavy damages. During the trial the testimony showed that the tire which exploded had been sold by the manufacturer 1½ years before it exploded. However, it had not been used on a truck. Hewitt testified that he did not notice any defect or scuffing on the exterior of the tire and that it exploded when he tested the pressure with the tire gauge, which registered between 30 and 34 pounds. It was Hewitt's theory that the explosion was the result of a defective beading. During the trial, X-rays of the tire were introduced, showing that nearly all of the strands of wire in the bead were broken, but there was no clue as to the cause of the break. The majority of the judges of the higher court awarded Hewitt $15,000 damages, and said:

"Under the circumstances, here present, the defendant's (manufacturer's) negligence or lack of negligence was properly a question of fact for the jury, as were the questions relating to damages. The jury was entitled to consider the results of tests and experiments conducted."

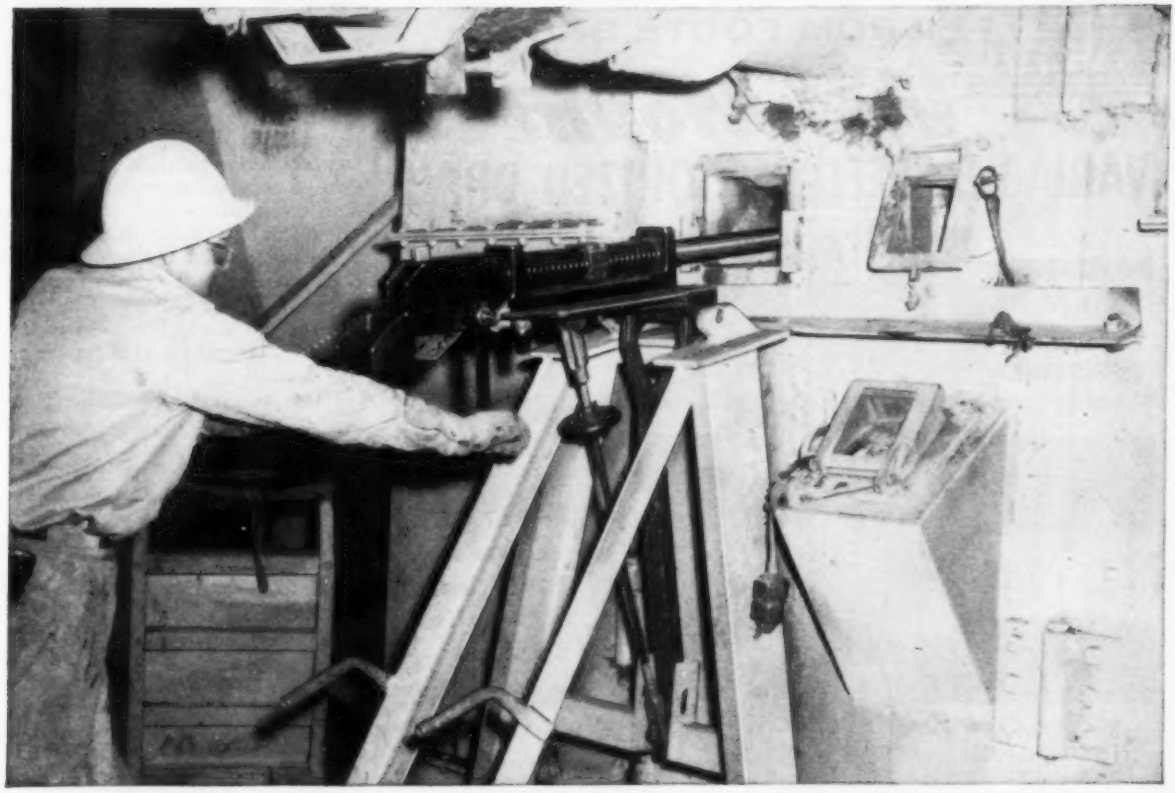
Law Of Zoning

The question of zoning again occurs in the following excerpt from a letter: "If a quarry corporation buys land for the purpose of operating a quarry in a city, not zoned in this area, with only a few residences nearby, is a later ordinance or order valid which will prevent operation of the quarry?"

Modern higher courts consistently held that if a quarry was being operated before residences were constructed in the neighborhood, a new zoning ordinance or law cannot ordinarily prevent further operation of the quarry in the same way.

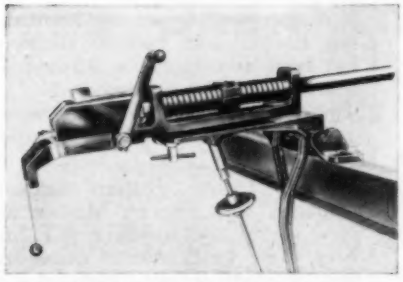
On the other hand, some higher courts have upheld the validity of zoning ordinances that anticipate future development of residences in the area.

For illustration, see *Davidson County v. R. Stone Quarry,* 198 S. W. (2d) 812. A corporation intend-



Here's the easy, cost-saving way to remove Clinker Rings—

Remington Industrial Gun



WITHSTANDS HIGH TEMPERATURES AT KILN HOOD. Special steels and castings enable the Remington Industrial Gun to operate safely at kiln hood temperatures. Gun is easily installed by attaching bolster to hood I-Beam or movable mount as shown.

You save valuable man-hours in removing clinker rings with the hard-hitting Remington Industrial Gun. A pull of the gun's lanyard does the work of many sledge hammers... brings rings and other troublesome kiln formations down in minutes!

No need to wait until kiln cools off. In fact, you don't have to turn off flame or stop rotation until you're ready to shoot. Then just load . . . aim at ring juncture and BAM—the 9,000 ft.-lbs. of knockdown power from a Remington Industrial Magnum* shell smash into the ring! It takes only a short time to dislodge it—without damage to kiln or lining—and you're quickly back on full-time schedule.

Here's proof: One Georgia refractory saved 222 man-hours and gained 26 hours' production time per month with this easy-to-use, one-man tool. So don't let clinker rings "bottleneck" your plant, let the Remington Industrial Gun cut downtime to a minimum. Just clip and mail coupon for our illustrated, fact-filled folder.

** For shorter kilns, Remington Standard Industrial Shells fill the bill. 7,500 ft.-lbs. of energy are delivered!*

Remington

DUPONT

Remington also manufactures the Model 455 and "Mighty-Mite" Stud Drivers for instant fastening into concrete or steel.

Industrial Sales Division PQ-2
Remington Arms Company, Inc.
Bridgeport 2, Conn.

Please send me your free booklet which shows how the Remington Industrial Gun speeds removal of clinker rings.

Name_____ Position_____

Firm_____

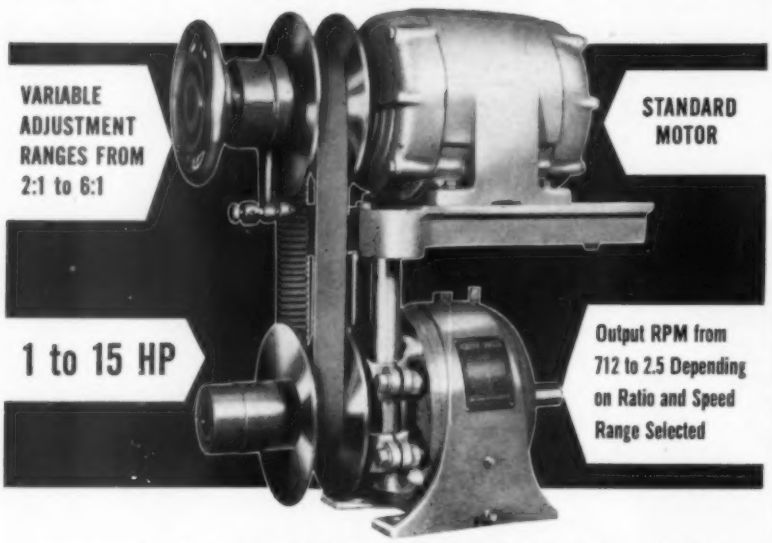
Address_____

City_____ State_____

NEW FROM FOOTE BROS.

Vari-Mount

VARIABLE SPEED MOTORIZED DRIVE


VARIABLE ADJUSTMENT RANGES FROM 2:1 to 6:1
STANDARD MOTOR
1 to 15 HP
Output RPM from 712 to 2.5 Depending on Ratio and Speed Range Selected

VARI-MOUNT—the new Variable Speed Motorized Drive offers infinitely variable speed selection, greater flexibility of operation, wide adaptability, easier maintenance and the sound design you expect from Foote Bros.

With a Vari-Mount, you can use your own motor—old or new NEMA Standard—or, the unit can be supplied with any standard motor of your choice. The Vari-Mount Reducer incorporates Duti-Rated Lifetime Gearing with file-hard tooth surfaces and tough, ductile cores for maximum life and efficiency.

Positive handwheel control of the adjustable pulley permits pin-point accuracy in speed selection over the entire range. Vari-Mount Units may be equipped with Remote or Automatic speed selection devices if required.

Spring loaded, self-centering Variable Pulley and close-coupled in line design insures permanent belt alignment, smoother performance, and minimum overhung load on motor bearing. No thrust load is imposed on motor bearings at any speed or during speed changes.

Quick belt changes made possible by the wide-open design of the Vari-Mount, together with easily accessible lubrication fittings make maintenance an easy matter.

3 TYPES 7 standard mounting positions

Want complete details?...Write for Vari-Mount Catalog today

this trademark stands for the finest industrial gearing made

T. M. REG. U. S. PAT. OFF.

FOOTE BROS.

Better Power Transmission Through Better Gears

FOOTE BROS. GEAR AND MACHINE CORPORATION

4571 SOUTH WESTERN BOULEVARD · CHICAGO 9, ILLINOIS

ed to operate a quarry and purchased land in a city not zoned for residential purposes. After nearby property owners learned that the R. Stone Quarry had acquired the land, they protested to the zoning commission against the installation and operation of a stone quarry in this area. The commission, after considerable investigation, issued a resolution which prohibited operation of the quarry on the land recently acquired by the R. Stone Quarry. The latter appealed to the higher court which, however, upheld the new zoning order, and said:

"The defendants (R. Stone Quarry) at the time of the passage of the resolution had not commenced the operation of a quarry, nor declared their intention to do so. The area zoned is suitable for residential development, and the natural future growth and development of the suburban district makes that development entirely probable. We find the effect of the resolution is for the general welfare and we cannot find that the resolution is arbitrary or unconstitutional."

Also, see *West Bros. Company v. City of Alexandria*, 169 Va. 271, and *Quarry*, 147 Cal. 609. Both of these higher courts held that a state, a county, or a city can legally forbid the operation of quarries in locations near dwellings if no quarry had been operated there before present residences were constructed.

An extensive reorganization of the field sales structure of the Manhattan Rubber and Packing Division has been announced by Raybestos-Manhattan, Inc., Passaic, N. J. These are the new regional managers and their respective district managers.

R. F. Teeling, Eastern regional manager, with Stewart Monroe as New York district manager, J. T. M. Frey, New Jersey district manager, and F. McBrearity, Philadelphia district manager.

A. L. Hawk, Central regional manager, with A. N. Johnston, Jr. as Pittsburgh district manager, G. S. Himebaugh, Chicago district manager, and E. T. Fair, Denver district manager.

C. P. Shook, Jr., Southern regional manager, with A. A. Ringland as Birmingham district manager, A. E. Jackson, New Orleans district manager, E. W. Nagel, Dallas district manager, R. C. Nielson, Houston district manager.

S. V. V. Hoffman, Western regional manager, with R. B. Park as San Francisco district manager.

One **DRILLMASTER** keeps three shovels busy!

WORKING NIGHT AND DAY in a big rock cut on an eastern turnpike extension, the DRILLMASTER shown above was sinking 6-inch blast holes and keeping one 3½-yard and two 3-yard shovels busy handling the rock produced.

By means of DRILLMASTER's "down the hole" Depth-Master drill, holes 55 feet deep were drilled on 14-foot centers with 19-foot burden. Average overall footage ran 25 feet an hour, and production topped 5900 gross cubic yards in 24 hours. The DRILLMASTER Carset Jackbits delivered an estimated total life of 10,000 feet of hole, with over 800 feet between sharpenings.

An exclusive DRILLMASTER feature, the unique "down the hole" Depth-Master drill goes down with the bit. It avoids the waste of power normally required to overcome the inertia of long lengths of drill steel.

The three-way DRILLMASTER can also be used as a Rotary drill or with the Power-Master combination "out of the hole" drill. Complete packages—including tower and accessories—are available for tractor or truck mounting.

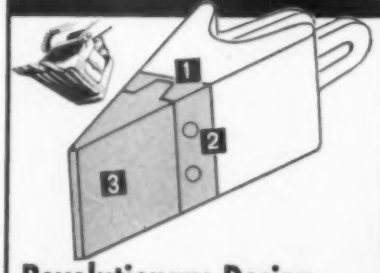
Write for Bulletin 4179. 5-388

Ingersoll-Rand
11 Broadway, New York 4, N.Y.

ROCK DRILLS • COMPRESSORS • AIR TOOLS • TURBO BLOWERS • CONDENSERS • PUMPS • OIL & GAS ENGINES

NEW!
Bulldog Replaceable Digger Teeth

CUT INVENTORY AND REPLACEMENT TOOTH COSTS UP TO 65%



Revolutionary Design Has Just 3 Parts

1. *Universal Weld-On Adapter* uses old tooth as a base. Saves the cost of conventional adapter or new tooth. Same adapter fits on several different types of equipment. Easily welded on worn teeth.

2. *Positive Lock Pins* that give a tight fit to the replaceable tooth and are easily removed for replacement.

3. *Easy Change Replaceable Tooth**, changed with a hammer and punch. Has reversible bevel point. Made of highest quality alloy steel — heat treated to outwear all other teeth. Field tested in taconite mines under toughest abrasive conditions, Bulldog Teeth have consistently shown cost savings up to 65%.

YOU NEED ONLY A FEW ADAPTER SIZES TO FIT ALL POPULAR MAKES OF

Shovel Dippers — Dragline Buckets
Back Hoe Buckets — Clamshell Buckets
Loader Buckets

For descriptive folder, technical data, prices, and name of your nearest dealer—

**pat. pending* *Write Dept. PT-2.*

Sales Representative and Distributor Inquiries Invited

ALLIED
STEEL & TRACTOR PRODUCTS, INC.
7835 Broadway Cleveland 5, O.

Manufacturers' News

DANIEL S. HEFFRON has been elected vice-president of the "Quick-Way" Truck Shovel Company, Denver, Colo. The promotion was announced by Clinton D. St. Clair, president.

Well known in the construction equipment field, Mr. Heffron has been director of sales for "Quick-Way" since 1944 when he came to Denver from Chicago, Ill. where he was vice-president of the Midland Refractories Company.

D. S. Heffron

V. F. Stine

VICTOR F. STINE has been elected the new president of Pangborn Corp., Hagerstown, Md., manufacturers of blast cleaning and dust control equipment. Concurrent with Mr. Stine's appointment, Ralph M. Trent assumes the duties of a director and executive vice-president and W. O. Vedder was elected a vice-president. Thomas W. Pangborn, founder and president of the Corporation since 1904 will continue to serve Pangborn as chairman of the board of directors, while John C. Pangborn, former 1st vice-president will fill the office of vice-chairman of the board.

Mr. Stine, with Pangborn for 45 years, started as a bookkeeper, progressed through diversified activities and in 1935 became 2nd vice-president in charge of sales and engineering and since 1951 he has been a director of the Corporation.

Mr. Trent, with the Corporation for 27 years, has served as district sales manager in Pittsburgh and since 1947 has been manager of Pangborn's extensive Pacific Coast field organization. He will now be located in Hagerstown as a director and executive vice-president.

Associated with Pangborn for 28 years, Mr. Vedder will continue to be in charge of Pangborn's dust control division with his new position as a vice-president.

The Timken Roller Bearing Co., Canton, Ohio, has appointed the Vanadium-Alloys Steel Canada Limited as a distributor of Graph-Mo tool steels and Graph-Mo Hollow Bar with exclusive sales rights in the Dominion of Canada. The Canadian firm is a subsidiary of the Vanadium-Alloys Steel Company of Latrobe, Penn. Headquarters for Vanadium-Alloys Steel Canada Limited are in London, Ontario, where they have rolling mills, forge shop and complete finishing equipment for the production of tool steel, stainless steel, special alloy steel bars and forgings.

A. HOWARD SMITH, Rochester, N. Y., has been appointed by The Jeffrey Mfg. Co., Columbus, Ohio, as manager, commercial research. He has had varied training and exerience in near-term and long-range forecasting and planning, general business trends, industrial market research and special investigational studies.

Previous to his coming to The Jeffrey Company, Mr. Smith directed business research departments for Robbins & Myers, Inc., Springfield, Ohio, and Bausch & Lomb Optical Co., Rochester, N. Y.

A. H. Smith

C. G. Schilbe

The Jeffrey Mfg. Co. also announces the appointment of CARL G. SCHILBE as district manager of the Salt Lake City territory in charge of sales for both Industrial and Mining Division products.

Mr. Schilbe came with Jeffrey as a sales trainee. Among his various training and job assignments were work in the erection department supervising construction of Industrial Division equipment; acting as special projects engineer in the Quality Improvement Section of the Quality Control Department; and field service work on mining machines.

This is a complete Universal-engineered plant operating in the Limestone quarry of McDonnough Brothers, Inc. near San Antonio, Texas. Of the Universal plant, Mr. McDonnough said, "We consider it the best engineered plant available".

"600 tons per hour 100% passing 1½" screen with our Universal 4650 Impact Master"

Says Mr. James P. McDonnough, president, McDonnough Brothers, Inc.. San Antonio, Texas

The Universal 4650 Impact Master. In-fed rock is reduced by a smashing blow from two rotor hammers turning in the same direction. Material moves forward and out by straight-line action.

"WE PURCHASED a complete Universal plant, including the 4650 Universal Impact Master for our limestone crush because we consider it the best engineered plant available. And we consider the Universal Impact Master the best operating crusher.

"We have, so far, produced 600 tons per hour of 100% crush passing 1½" screen with our Universal 4650 Impact Master. We have not yet come close to the capacity limits of our new plant, but are confident that we are equipped to crush at least 800 tons per hour.

"In 1951 we purchased a Universal Impact Master (Model 3042) for crushings mainly in 7/16" size, for limestone used in asphalt and chemicals. Continuous operation of this plant for six years has given us an excellent opinion of the worth of Universal equipment and was a determining factor in our purchase of a complete new Universal-engineered plant this year."

Aggregate producers everywhere look to the Universal Impact Master for top production in all types of material. It gives them more uniform gradation . . . top quality cubical aggregate with minimum wear and maintenance. Universal equipment is engineered for the rock crushing industry by men who know rock crushing equipment.

Write for complete information on the Universal Impact Master today.

PETTIBONE UNIVERSAL
In Cedar Rapids Since 1906

UNIVERSAL ENGINEERING CORPORATION
619 C Avenue, N.W., Cedar Rapids, Iowa
A subsidiary of Pettibone Mulliken Corporation, 4700 W. Division Street, Chicago 51, Illinois

Now, a stronger thread for bags—at low cost!

BAGS SEWN WITH "SUPER CORDURA" withstand rugged handling, reducing spillage sharply.

"SUPER CORDURA" permits use of smaller needles, preventing material loss due to sifting.

SAVE TWO WAYS WITH NEW DU PONT "SUPER CORDURA"

REG. U. S. PAT. OFF.

High Tenacity Rayon

- **Bags sewn with it cost less**
- **Cuts cost of closing operation**

Du Pont "Super Cordura"* gives you greater seam strength—yet bags sewn with it cost you less. Drop tests prove this strength minimizes the danger of seam breakage.

"Super Cordura" saves you money in your own closing operations, too. It lets you use one size thread for most jobs, meaning reduced thread inventory. And it's treated with a special finish to insure good sewability.

Consider the advantages of bags sewn with Du Pont "Super Cordura" the next time you order multiwalls . . . and order it for use in closing, too.

E. I. du Pont de Nemours & Co. (Inc.), Textile Fibers Department, Wilmington 98, Delaware.

**"Super Cordura" is Du Pont's registered trademark for its high tenacity rayon yarns.*

DU PONT

REG. U. S. PAT. OFF.

Better Things for Better Living . . . *through Chemistry*

THREAD OF "SUPER CORDURA"... easier to sew ... costs less than conventional thread . . . extra-strong

Link-Belt Company will build a new plant in Montebello, Calif., about 10 miles east of downtown Los Angeles, to replace and expand its facilities at 361 South Anderson Street, Los Angeles. Ground will be broken next spring and it is expected the plant will be completed and in operation by November, 1957.

The plant and all operations in the territory it serves are under the direction of ROBERT C. CHRISTIANSEN, southern general manager of Link-Belt's Pacific Divisions.

Madison L. Crawford, advertising manager of The Frank G. Hough Co., Libertyville, Ill., has announced the appointment of ROBERT D. SCHWARTZ as an assistant.

Mr. Schwartz is the former advertising manager of Deepfreeze Appliance Division of Motor Products Corporation.

He joins Robert Connolly, also assistant to the advertising manager, as a part of the overall expansion of the company's activities.

M. L. Crawford

L. S. Clarke

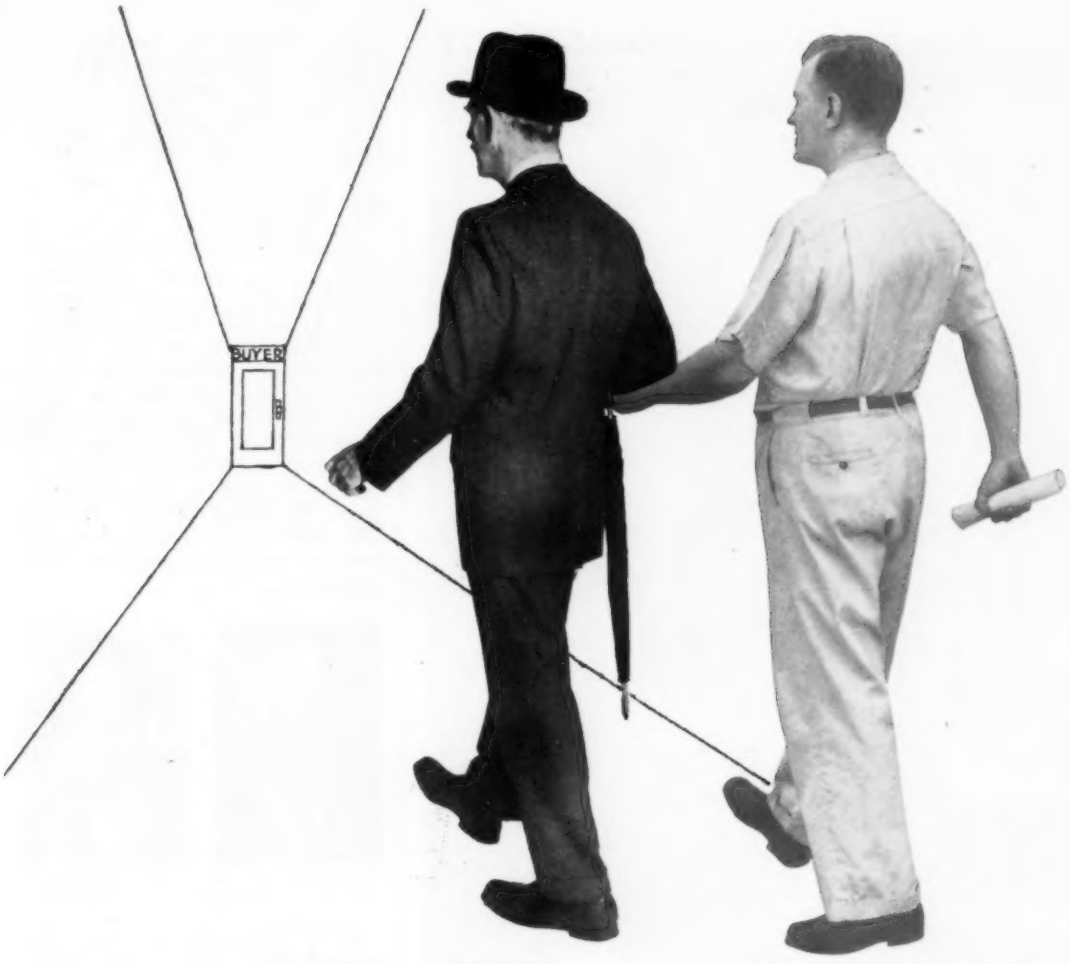
LOUIS S. CLARKE, last of the pioneers of America's automotive industry, died recently in West Palm Beach, Fla. He was 90.

A contemporary of Henry Ford and Duryea, Mr. Clarke developed the first American spark plug, the direct drive motor car, the double reduction gear and the circulating oil system. He also fathered left-hand drive for motor cars.

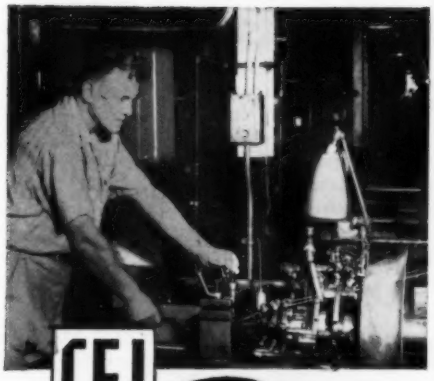
Mr. Clarke, founder of The Autocar Company, now a division in Exton, Pa., of The White Motor Company, had recently completed 10 metal chandeliers on his own small forge for the Holy Trinity Episcopal Church, West Palm Beach, Fla.

The Dewey and Almy Chemical Co., Cambridge, Mass., Division of W. R. Grace & Co., has announced the appointment of EDWARD L. MEARS as manager of the central services division.

Most recently manufacturing manager of the container and chemical specialties division, Mr. Mears has been with Dewey and Almy since 1930.



Your Wickwire Rope Distributor and our closer operator ...ready to help you



This closer operator—running a machine which forms our rope—is with your Wickwire Rope Distributor every time he makes a call.

True, he's physically in the mill, where he's carefully conducting this final fabricating operation. But, whenever your Wickwire Distributor makes a call, he has the full assurance that every foot of Wickwire Rope has been carefully assembled by skilled craftsmen . . . and that it will give you long, trouble-free service on your job.

It's just one more reason why your Wickwire Distributor knows he's got top-quality wire rope, slings and strand to sell . . . and that these products will serve you well.

CF&I WICKWIRE ROPE A CF&I PRODUCT

4085

A PRODUCT OF THE COLORADO FUEL AND IRON CORPORATION

New trends in the use of refractories by **LACLEDE-CHRISTY**

LACLEDE-CHRISTY introduces new packaging for Refractory Specialties

For improved identification. Product and application data on Laclede-Christy's new castables, plastics, ramming mixes and bonding mortar, cartons and drums and bags are clearly visible and easy-to-read.

Improved product protection. Laclede-Christy cartons, drums and bags contain consistently high quality products securely protected during shipment and handling. Drums are sealed against weather and water.

New quality-first controls also are in effect at Laclede-Christy. They add to improved packaging as reasons why you profit by using Laclede-Christy refractory products. Your Laclede-Christy man will be glad to give you a complete report. See him soon. Laclede-Christy Division, H. K. Porter Company, Inc., St. Louis 10, Missouri.

HKP LACLEDE-CHRISTY DIVISION
H. K. PORTER COMPANY, INC.

N. A. Carter Sr., for three decades one of America's formost truck-trailer manufacturers and for the last five years vice-president of Fruehauf Trailer Company, Detroit, Mich., has retired from active business. He will continue to serve the company as a consultant.

Mr. Carter, regarded as one of the pioneers in highway transportation, in 1924 founded the Carter Manufacturing Company in Memphis, Tenn., to build truck-trailers of various types. In 1947 Carter Manufacturing became a part of the Fruehauf Trailer Co. and Mr. Carter was named manager of the Memphis plant. Truck-trailers manufactured there continued for a number of years to bear the nameplate "Fruehauf Carter." He has also served in the Fruehauf organization as regional manager and vice-president.

N. A. Carter, Sr.

D. J. Redmond

D. J. Redmond has been appointed as director of sales of Hercules Galion Products, Inc., Cleveland, Ohio.

In his new post, Mr. Redmond will be responsible for sales activities of the corporation's Hercules Steel Products Company, Galion Allsteel Body Company, Unisteel Body Company and Hydro E-Z PACK Company Divisions. Prior to his appointment as director of sales, he served as assistant to Hercules Galion's senior vice-president, O. C. Henkel.

Herbert E. Ihrig has been appointed manager of marketing administration and personnel development for General Electric's Metallurgical Products Department, Detroit, Mich.

With the new appointment, Mr. Ihrig's duties are widened to include broad administrative duties in the department's marketing section, as well as those directly related to marketing personnel development and customer education activities. He joined General Electric 9 years ago, upon leaving the sales organization of American Airlines.

MARTIN A. BERTRAM, a service engineer for Thor Power Tool Company of Aurora, Ill., has been appointed manager of Thor's new Great Lakes electric tool sales zone.

Mr. Bertram has been electric tool service engineer in the Detroit area for the last three years. He will make his headquarters in Detroit.

A new branch office of the Thor Power Tool Co. has been opened in Richmond, Va. KENNETH V. BENNETT, who has been Philadelphia district service engineer, is manager of the new branch.

The office, at 2024 Chamberlayne Avenue, Richmond, will serve most of Virginia, the southern part of West Virginia, and all of North Carolina. The area was formerly in the Thor Philadelphia branch territory.

Appointment of RANDOLPH H. JACKSON as director of sales of the Boston Woven Hose & Rubber Company, Boston, Mass., has been announced. He will direct all sales activities of Industrial Rubber Products Division, which encompasses Industrial Hose, Belting, V-Belts, Packing, and Textile Specialties.

Prior to joining the company, Mr. Jackson was vice-president of the Clinch-Tite Division of Payson & Trask, and previously was manager of the Power Transmission Division of the American Pulley Company.

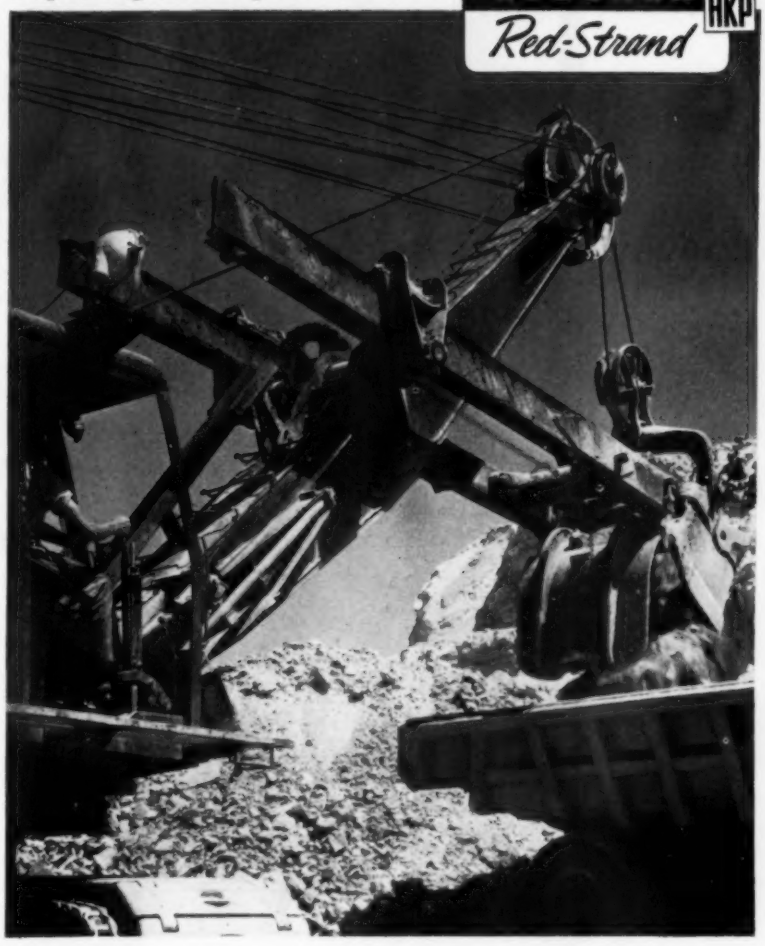
Blackwood Hodge Equipment Ltd., formerly Innes Equipment Limited, has been appointed as authorized dealer for the complete line of Euclid earthmoving equipment in the Province of Ontario, Canada, by Euclid Division, General Motors Corporation, Cleveland, Ohio.

This new Euclid dealer is the Canadian division of Blackwood Hodge, Ltd., of London, England, one of the world's largest equipment distributors. The parent company and many of its divisions in foreign countries have represented Euclid for about 15 years.

Also announced is the appointment of Interstate Tractor & Equipment Co. as authorized Euclid Dealer in Oregon and the river counties of southwestern Washington.

Interstate, largest heavy-equipment dealer in the Pacific Northwest, has purchased the majority of the assets of P. L. Crooks & Company, former Euclid dealer in the area. In addition to the complete line of Euclid earthmovers, Interstate represents Thew Shovel Co. and Chicago Pneumatic Tool Co.

Improving wire rope service with **LESCHEN** HKP *Red-Strand*

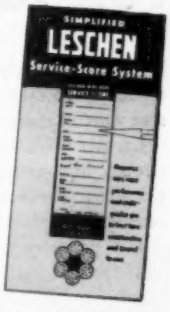


How to prove wire rope performance for yourself

There is a difference in wire rope—in types, in constructions, in brands. And using the right rope every time can easily reduce rope costs by 10% to 20% or more.

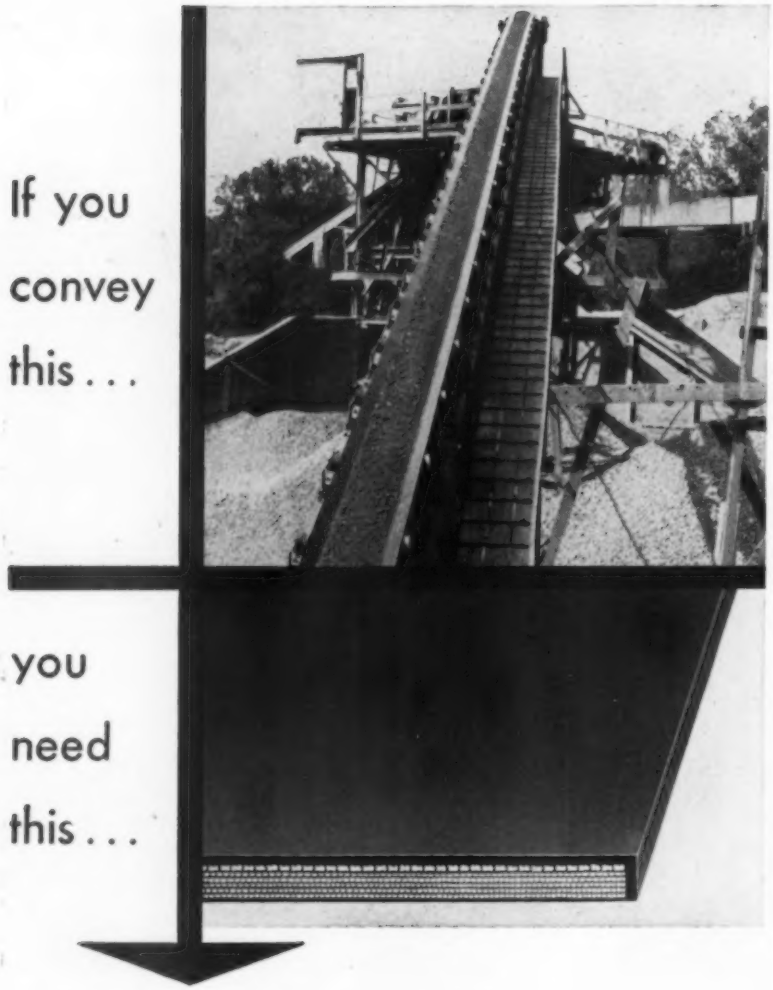
How do you know which rope is right? First, get good advice. Leschen field men, distributors and Leschen's engineering department can help you make the best choice. Second, prove it out with easy-to-use Leschen Service-Score stickers. They tell you right on the job how you're doing—help you make accurate comparisons.

Keep the score—see the results—and you'll use more Red-Strand Wire Rope. See your Leschen man or write Leschen Wire Rope Division, H. K. Porter Company, Inc., St. Louis 12, Missouri.



Leschen engineering advice and Service-Score Stickers are yours for the asking. Write for fact-folder.

HKP LESCHEN WIRE ROPE DIVISION
H. K. PORTER COMPANY, INC.



QUAKER CONVEYOR BELTING FOR TOUGH SHOCK RESISTANCE!

The Quaker belt you see above is made especially to take the impact and abrasive wear of sharp, jagged loads.

Carcass is formed of multiple plies of strong, high-quality cotton duck, with skim coat between plies. Average cover tensile strength is 2500 to 3000 lbs.

Do you need even greater troughability, flexibility or tension rating? Quaker can supply belts of new high tensile strength rayon or cotton-nylon fabrics. Any desired cover thickness.

Your Quaker Rubber-Quaker Pioneer Rubber distributor also carries a complete line of hose, packing and moulded rubber products for every use. Call him today.

For free brochure, please write to:
H. K. Porter Company, Inc., Quaker Rubber Division, Philadelphia 24, Pennsylvania, or Quaker Pioneer Rubber Division, Pittsburg, California.

HKP QUAKER RUBBER DIVISION
QUAKER PIONEER RUBBER DIVISION
H. K. PORTER COMPANY, INC.

Appointment of GORDON H. BICKLEY as assistant advertising manager, Gar Wood Industries, Inc., Wayne, Mich., has been announced.

Mr. Bickley joined Gar Wood in 1954. He was previously associated with Chamberlain Company of America.

E. G. MUIR, sales manager for the Omaha Sales Division of Bemis Bro. Bag Company, St. Louis, Mo., has been named to head a newly designated sales development section of the company's general sales department in St. Louis. He will supervise Bemis sales management methods and procedures, advertising and publicity, trade extension, and sales personnel selection and training.

Mr. Muir joined the Bemis organization in 1949 as a salesman at Omaha and was made an administrative assistant there in 1951. He was named sales manager in 1953.

E. G. Muir

V. M. Anderson

Four Wheel Drive Auto Company, Clintonville, Wisc., manufacturer of custom-engineered four- and six-wheel drive trucks, has promoted VICTOR M. ANDERSON to assistant to the vice-president-sales and FRED A. BROWN and ROBERT J. PETERSON to assistant sales managers.

Mr. Anderson, with FWD since 1936, has supervised the Clintonville sales office as sales administrator the last four years. He previously functioned in purchasing and field sales capacities.

Mr. Brown, who will be in charge of district sales managers in FWD's Eastern Division, has spent 19 years in the FWD organization, much of the time as a district sales manager in the midwestern area.

Mr Peterson entered the FWD firm as a district sales manager in the Northwest, after nine years in truck sales with another company. He will supervise FWD's Western Division sales staff.

Power Tractor Company, 2262 N. Oxnard Blvd., Oxnard, Ventura County, Calif., has been appointed Chrysler Industrial Engine Dealer. R. M. POWER operates the company.

hard and tough to the core...

The alloying, forging and heat-treating by Sheffield gives MOLY-COP Balls the right hardness and quality for the long, economical grind. It's why MOLY-COP Balls are still THE STANDARD OF COMPARISON AROUND THE WORLD

SHEFFIELD

ARMCO®

MOLY-COP

COPPER-MOLYBDENUM-ALLOY

Grinding Balls

SHEFFIELD DIVISION

ARMCO STEEL CORPORATION

SHEFFIELD PLANTS: HOUSTON • KANSAS CITY • TULSA

EXPORT REPRESENTATIVES

THE ARMCO INTERNATIONAL CORPORATION, MIDDLETOWN, OHIO

Dorr-Oliver Inc. announces the opening of a new office in Baltimore, Md. at 2125 Maryland Ave. The new, centrally located office will enable Dorr-Oliver to provide better service to enginers and industry in the Mid-Atlantic states of Virginia, West Vrginia, Maryland and Delaware. Sales engineers KELSEY C. LINDSTROM of Eastern Industrial Division and BENJAMIN F. ROCKECHARLIE of Eastern Sanitary Division have been transferred to the new office from Division headquarters in Stamford.

Dorr-Oliver announces the formation of Dorr-Oliver Pty. Ltd., a wholly owned subsidiary in Australia. The new company will design, market and service the complete line of D-O equipment in the Australia-New Zealand area. This new Australian organization becomes the ninth Dorr-Oliver Associated Company. D. U. McIntosh, associated with D-O activities in Australia since 1933, will be managing director.

Dorr-Oliver also announces the appointments of West Virginia Pump and Supply Co. and Chemical Pump and Equipment Corp. as distributors for D-O industrial and process pumps. West Virginia Pump and Supply will market, stock and service D-O pumps in southern West Virginia, Virginia, Kentucky and Ohio. This organization is headquartered in Huntington at 222 Fourth Avenue.

The distribution of D-O pumps in the central and northern Ohio area will be handled by Chemical Pump and Equipment, 3537 Lee Road, Cleveland, Ohio. This organization will also stock a complete line of D-O pumps and parts.

R. W. VOLLMER has been named to fill the newly created position of assistant to the general manager of the Engineering and Construction Division of Koppers Company, Inc., Pittsbugh, Penn. J. S. ATWOOD will succeed Mr. Vollmer as Manager of the chemical department of the Engineering and Construction Division.

Mr. Vollmer joined the Engineering and Construction Division as an operator in 1941. He became a project engineer in 1949. In 1953 he was named assistant to the sales manager of the freyn department and in 1954 he assumed the position of manager of the chemical department of the Division. In his new position, Mr. Vollmer will carry out special assignments primarily in the field of sales and project work.

Mr. Atwood joined Koppers in 1956 as a special engineer. In his new position he will devote his major efforts to the field of external sales and new process development.

The wire and cable business of United States Rubber Co., New York, N. Y., has been sold to Kaiser Aluminum & Chemical Corp., Oakland, Calif. The sale, which was for cash, became effective February 1. It included the plant, property and equipment in Bristol, R. I. In addition, Kaiser Aluminum will take over U. S. Rubber's wire and cable inventories, sales organization and distribution network.

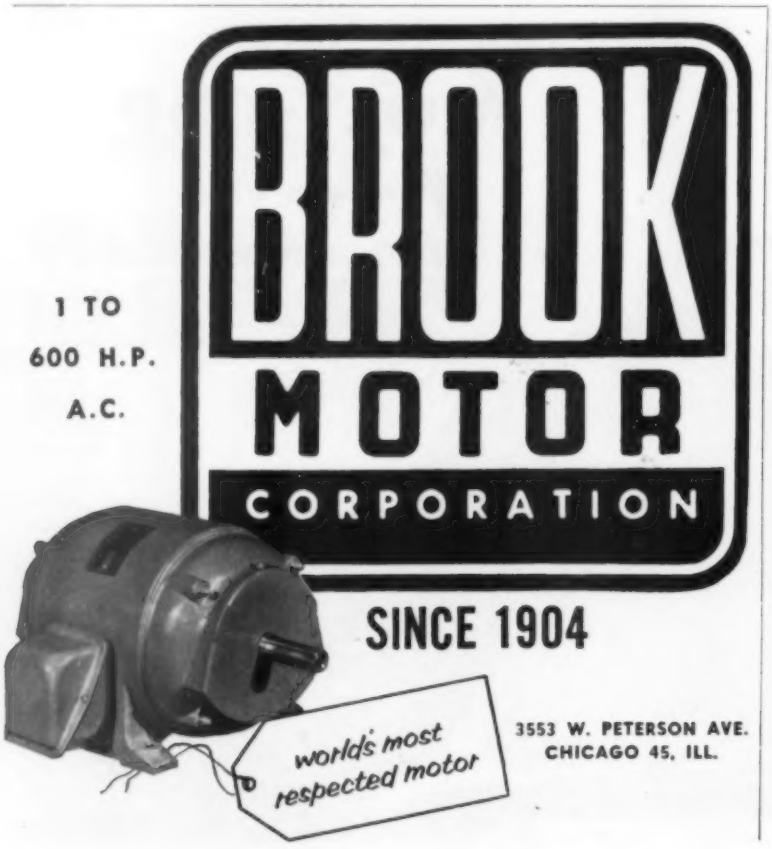
U. S. Rubber has been considering getting out of the wire business for some time, since it is more closely allied to the metals field than to the rubber industry. The company expects to continue to supply the rubber used for wire insulation at the Bristol plant. U. S. Rubber has produced insulated wire and cable at the Bristol plant since 1892.

T. W. EVANS, president, has been elected chairman and CHARLES L. HOLBERT, executive vice-president, has been elected president of H. K. Porter Company, Inc., New York, N. Y. Prior to joining the Porter Company, Mr. Holbert was executive vice-president of the Southern Pacific Milling Co., Ventura, Calif.

FRED C. FOY, president, Koppers Co., Inc., Baltimore, Md., has been elected to the board of directors, H. K. Porter Co., Inc. He joined Koppers in 1948, became a director in 1954 and was elected president in 1955. Before joining Koppers he was vice-president and manager of the Detroit office of J. Walter Thompson Co.

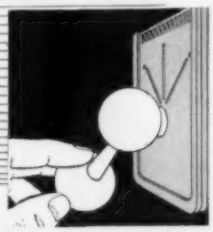
BOYD S. OBERLINK, group vice-president of Allis-Chalmers Manufacturing Co., Milwaukee, Wisc., has been elected to the firm's board of directors. He was elevated to his present position as group vice-president in 1956. Prior to that he was vice-president and general manager of the Construction Machinery Division.

Mr. Oberlink started with Allis-Chalmers in 1934. In 1936 he was named assistant supervisor of the allied equipment dept.,[a] and in 1940 was made manager of the Tractor Division's Washington, D. C. office. He became assistant to the vice-president of the Tractor Division in 1946.



Are you losing 10% of a day's production every time you change crusher setting?

One-man, One-minute PRODUCT CONTROL



● On some gyratory crushers, it takes 45 minutes and longer to change setting for different product size — in many instances, it takes hours. But even 45 minutes of downtime represents about 10% of your day. You don't have to put up with this lost production —not if you install the *Hydrocone* crusher, the crusher with one-man, one-minute product control.

With the *Hydrocone* crusher (and *only* with this modern crusher) you can change product size at the flick of a switch. Compensating for wear is accomplished just as easily. And if the *Hydrocone* crusher stops under load, just flick the switch and you're in business again.

Get all the facts about the *Hydrocone* crusher. See your A-C representative or write Allis-Chalmers, Industrial Equipment Division, Milwaukee 1, Wisconsin. Ask for Bulletin 07B7145B.

A-4931

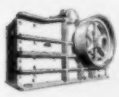
Hydrocone is an Allis-Chalmers trademark.

A-C ALLIS-CHALMERS

ALLIS-CHALMERS

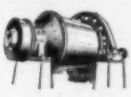
Hammermills

Vibrating Screens



Jaw Crushers

Gyratory Crushers



Grinding Mills

Kilns, Coolers, Dryers

MEET SIZING SPECS

1. The GILSON Testing Screen is the standard sizing control of the industry. Engineers specify it. Contractors use it to check aggregates at the job site.

2. Progressive producers have been using the GILSON Screen for fifteen years. It's fast and accurate. It takes a beating, stays fast and accurate after years of hard, continuous use.

3. What about you? Are you going to get your share of the $33-billion highway program? With the GILSON Testing Screen you'll meet sizing specifications with minimum time, labor, and cost.

4. The GILSON Screen makes two to seven separations simultaneously — 4-inch to 200-mesh — in five minutes or less per complete test. Field reports show that a GILSON Screen purchased now will serve you at least ten years under the most severe operating conditions, and with practically no maintenance.

5. Write for complete information. Do it now.

A sand attachment for handling 8-inch sieves is optional with the GILSON Screen.

GILSON SCREEN CO.

MALINTA, OHIO

The election of F. L. GRIFFITH and F. W. BLANCHARD as vice-presidents of Hewitt-Robins, Inc., Stamford, Conn., has been announced.

Mr. Blanchard will be responsible for manufacturing and engineering in the company's industrial products divisions. During the last six months he has been serving as assistant to the executive vice-president, Austin Goodyear, and previous to that was manager of operations of the Hewitt Rubber Division's plant at Buffalo, N. Y. He joined Hewitt-Robins in 1936.

Mr. Griffith, since 1953 has been general sales manager of the industrial products divisions and will continue in that capacity as a vice-president of the company. He has been with Hewitt-Robins since 1949, having started as supervisor of time study and methods in the foam rubber plant at Buffalo.

Sale of Chase Bag Company products in northern Illinois will now be handled by C. E. MCCABE, sales representative for Chase since 1947. He became associated with Chase Bag Company at its Buffalo branch and later was connected with the Pittsburgh sales office. Since 1951 he has handled sales in the Bakersfield, Calif. area.

CLAUD A. FENN, vice-president of the Clark Equipment Co., Buchanan, Mich., has been appointed to a newly-created position on the president's staff to coordinate manufacturing operations in all Clark plants.

Starting with Clark in 1934, Mr. Fenn has held positions as supervisor of the housing division, Buchanan plant manager, manager of all Buchanan division sales, engineering and manufacturing operations before being made a vice-president covering these functions.

JAMES L. WILLIS, district manager of the Altantic Seaboard District of Kaiser Chemicals Division of Kaiser Aluminum & Chemical Sales, Inc., Oakland, Calif., has assumed additional responsibilities as assistant to John B. Minshall, eastern regional sales manager.

E. WESTON HAMMOND has been appointed district manager of the Worthington Corp. Los Angeles district office. Formerly assistant manager of the Los Angeles district office, Mr. Hammond will replace J. G. Murphy who has been appointed special representative.

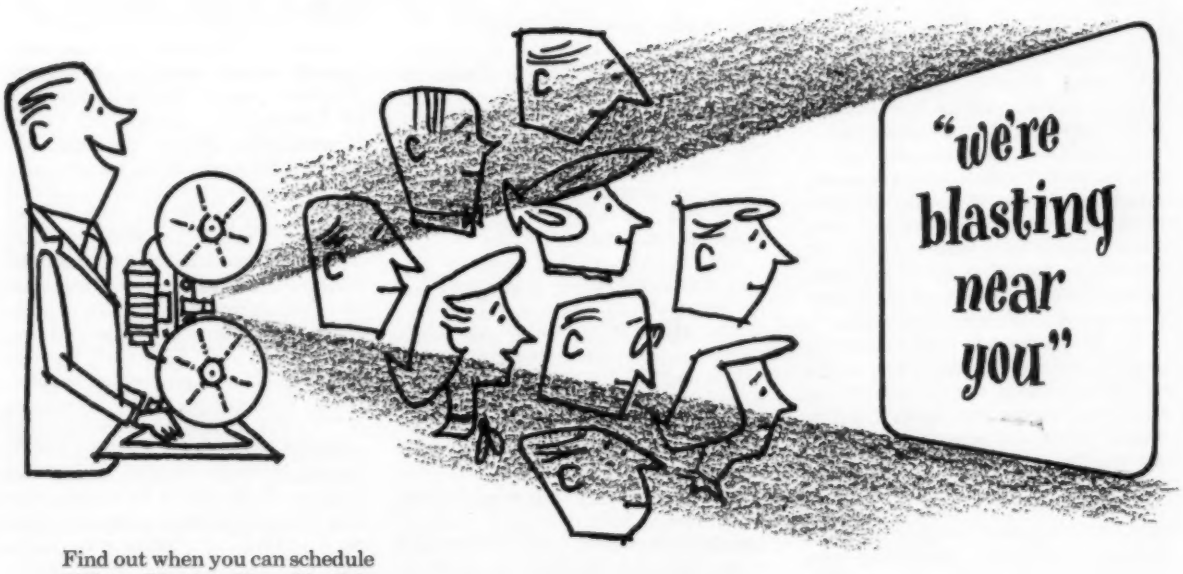
Here's a new, effective way to aid your public relations in the communities where you are blasting. It's the interesting, informative sound film in color, entitled, "*We're Blasting Near You.*"

This movie tells why blasting is necessary, and the steps you are taking to be a "good neighbor." It shows how millisecond delay techniques eliminate the old fashioned, jarring explosions of the past . . . how modern blasting methods hold noise to a muffled minimum and make vibration unnoticeable.

"*We're Blasting Near You*" can be shown to any age group: schools, service clubs, civic organizations. It is accompanied by a kit which includes suggested news releases, a sample introductory speech for the person presenting it as well as safety posters, and other helpful material. Show this unique new movie in your area. It can be an important help to you.

New film...

builds goodwill for users of explosives



Find out when you can schedule "*We're Blasting Near You*" in your community. And ask for "*Better Blasting,*" the Atlas newsletter on latest methods and materials.

Technical Customer Service Section

ATLAS POWDER COMPANY

WILMINGTON 99, DELAWARE

offices in principal cities

At a meeting of the board of directors of the Continental Gin Company, Birmingham, Ala., NELSON J. KEMP was named vice-president in charge of finance. At the same time, GEORGE C. MORGAN was named vice-president in charge of the Industrial Division. No other changes in officer personnel were made.

Mr. Kemp was employed as plant accountant for the Cooper Bessemer Corp., Mt. Vernon, Ohio, in 1940. In 1946, he resigned to become chief cost accountant for DeLavel Steam Turbine Co. of Trenton, N. J., where he remained until 1948. At that time, he became controller for Continental Gin Company. In 1951 he was elected treasurer, which position he will continue to hold.

Mr. Morgan was a practicing architect until 1936, when he joined the Continental Gin Co. He organized the Oil Mill Division and served as manager until 1941. At that time he organized and became manager of the company's war contract department, with the responsibility of negotiating and processing defense contracts with the Armed Forces. In 1945, the department was reorganized as the Special Products Division, and he continued to serve as manager until 1956, when he was named manager of the Industrial Division.

Fairbanks, Morse & Co., Chicago, Ill., have recently announced a number of changes in their manufacturing organization personnel.

P. R. FLOOD, formerly manager of the Pomona Works of the company, has been promoted to the position of general manager of the Beloit, Wisc., works. He succeeds W. E. Watson, who has left Fairbanks, Morse & Co. to take an important position with another corporation.

W. P. MCANALLY, who has been manager of the Stuttgart, Ark. works of the company for a number of years, has been transferred to Pomona, Calif. to manage the company's Pomona works.

C. H. JOHNSON, who has for the past several years been manufacturing superintendent of the company's Kansas City, Kans. works, has been promoted to general manager of the Stuttgart ,Ark. works.

GEORGE T. HAFFERMEHL has been appointed as sales representative for Leschen Wire Rope Division H. K. Porter Company, Inc., St. Louis, Mo. His territory will cover the New England States and eastern New York State. He was previously with Masury-Young Co.

S. T. MACKENZIE has been elected a vice-president of The Babcock & Wilcox Company, New York, N. Y., and placed in charge of the sales department of the company's Boiler Division. He was formerly sales manager of the sales department and his appointment fills a vacancy created by the retirement of W. T. McCullough, Jr.

Mr. Mackenzie joined Babock & Wilcox as a sales engineer in its Philadelphia office in 1934. He became district manager of the Philadelphia office in 1947 and in 1951 he was appointed sales manager of the Boiler Division.

Also announced is the appointment of Robert K. Allen as superintendent of product development at the Alliance, Ohio Research Center. He succeeds the late G. A. Watts.

S. T. MacKenzie

W. T. Stonehouse

Appointment of WILLIAM T. STONEHOUSE as sales and service engineer for the Mining, Crushing and Process Machinery Division of Nordberg Manufacturing Co., Milwaukee, Wisc., has been announced. Mr. Stonehouse has his headquarters in the company's San Francisco office and will work in the various states assigned to this office.

Mr. Stonehouse has been in an intensive sales training program at Nordberg's main plant and sales office in Milwaukee for the past year.

WILLIAM H. GUTERL has been appointed assistant to the general manager of sales at the headquarters of American Steel & Wire Co., Cleveland, Ohio.

Mr. Guterl's first job with American Steel & Wire was as a defense regulation priorities analyst. He held that position from 1946 until 1947 when he was moved up to sales analyst in the accounting department. After two and half years of analyzing sales and its accompanying facts and figures, he was appointed sales statistics supervisor in 1950. He has been heading up the sales analysis function of the Division since that time.

Also announced is the appointment of LLOYD G. DEPNER as assistant manager of Cleveland District Sales of American Steel & Wire sales unit. He started with the Division back in 1937.

In his new post he will help direct sales activities in the District, which includes nearly all of northern Ohio with particular emphasis on construction materials and wire rope.

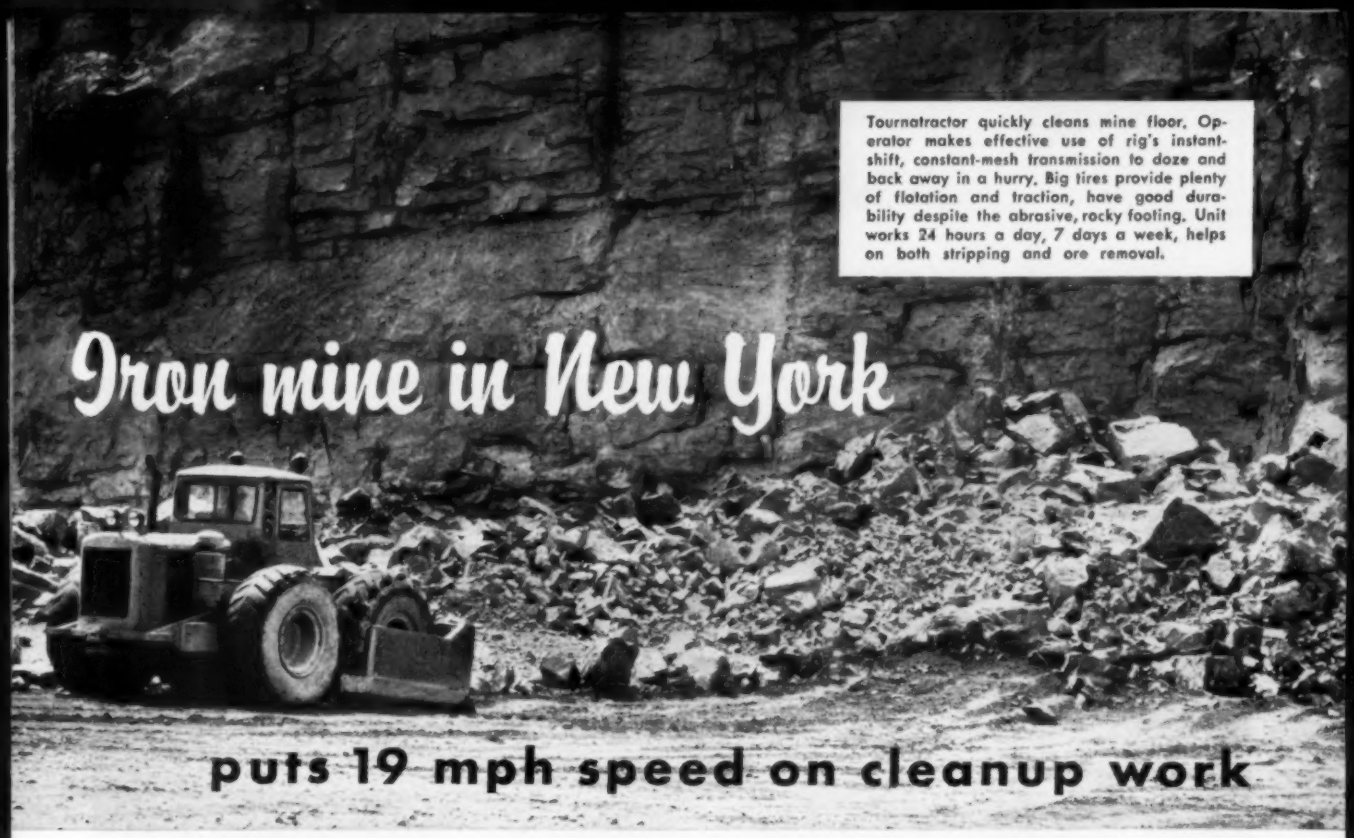
The officers and directors of the Ajax Flexible Coupling Co., Inc., Westfield, N. Y., announce the retirement of WAYNE BELDEN as president. This is in line with management policy .

Mr. Belden, together with William T. Welch, has been with the company since its founding in 1920 by Dr. C. E. Welch. Upon the death of Dr. Welch in 1926, William T. Welch became president and he and Mr. Belden have continued in close association in shaping the policies of the company.

Both Mr. Welch as chairman and Mr. Belden as marketing and public relations counsel, continue as members of the Board of Directors.

Major expansion of industrial sales operations and staff at Minneapolis-Moline, Minneapolis, Minn., has been announced, with the appointment of a national sales staff headed by E. A. HENRY, manager of the firm's Industrial Power Division.

DAVID S. HANSEN, JR. has been appointed sales manager in charge of dealer sales. He was formerly sales manager of Baker-Lull Corp., Minneapolis, Minn. GEORGE W. BALCH, formerly MM eastern district manager, has been appointed regional sales manager with a staff of five district representatives. HAROLD H. BRADSHAW, former industrial division office manager, is now district representative for Minnesota, Iowa, Wisconsin, and upper Michigan. DONALD R. KENDALL, director of production education and service, Hub Equipment Sales, Syracuse, N. Y., was named MM district representative for New York and New England with headquarters at Darien, N. Y. JOHN P. SEIBEL, former Central Division salesman, Fond du Lac, Wis., is district representative for Pennsylvania, New Jersey, Maryland, District of Columbia, Virginia, and West Virginia. ROBERT F. OSBORNE, former MM Iowa Division salesman, Grand Mound, Iowa, is district representative for Illinois, Indiana, and Kentucky. JOHN KNUDSON, former MM Eastern Division salesman, Newbury, Ohio, is district representative for central and southern Michigan and Ohio.



Tournatractor quickly cleans mine floor. Operator makes effective use of rig's instant-shift, constant-mesh transmission to doze and back away in a hurry. Big tires provide plenty of flotation and traction, have good durability despite the abrasive, rocky footing. Unit works 24 hours a day, 7 days a week, helps on both stripping and ore removal.

Iron mine in New York puts 19 mph speed on cleanup work

- **Rubber-tired tractor clears mine-floor after blasting**
- **Rig also cleans up around 4½-yd. shovel**
- **In winter, plows snow from haul roads and blast areas**

With drilling and blasting done throughout the day along an ore body two miles in length, this New York open-pit iron mine has a major cleanup problem. They have licked the problem with the speed and maneuverabilty of a rubber-tired Tournatractor.

On the relatively long runs between operating faces, this 19 mph rig makes a much faster trip than could a crawler-tractor. Another advantage of Tournatractor is that it does not cut-up the surface of the haul roads like a crawler does.

During winter, Tournatractor also finds time to plow snow from the pit roads and loading areas. It also clears areas to be blasted. This keeps snow from getting mixed in with the shot rock and later from causing trouble inside the crushers.

"Excellent on night shift"

For work on the night shift, owners are particularly pleased with the lights on their Tournatractor. They find that "night work does not slow this rig nor put any limitations on areas where it can travel or work."

For proof of these advantages, ask for a demonstration *in your pit* of this high-speed 208 hp machine. See for yourself how quickly and how economically it will handle your scattered pushing, pulling and dozing jobs.

The ore body being mined here was discovered in 1810 by engineers surveying a military road between Albany and Ogdensburg. Only a small amount of iron was removed, however, until 1944 when modern methods of beneficiating magnetite and low-grade non-magnetic martite ores made the operation profitable. This year, 1,300,000 gross tons will be processed. All will be taken from a deposit slightly over 2 miles long and 200′ to 1400′ wide. Iron content averages 24%. Overburden includes a structural hanging wall of granetized gneiss, plus up to 60′ of glacial drift (mostly sand, hardpan, and boulders). Height of operating faces is set at 50′ except for some first cuts of 100′. Drilling is made with 42-T and 50-T churn drills, with chrome-nickel-moly bits of 4340 grade. Nine-inch primary holes are spaced about 23′ apart and burden at toe is kept as close to 20′ as possible. Every pound of explosive breaks about 2.35 gross tons of crude ore. This is loaded by 4½-yd. shovels into 22-ton rear-dumps and transported to the 54 inch primary crusher. Rock chunks too big to pass the 4½-yd. dipper (about 1 chunk per 40 tons of crude ore) are reduced to handling size by a 4-ton drop ball handled by a truck crane.

Tournatractor—Trademark T-751-M-b

LeTourneau-WESTINGHOUSE Company, PEORIA, ILLINOIS

A Subsidiary of Westinghouse Air Brake Company

WHERE QUALITY IS A HABIT

AMSCO TUBE ○ RODS

for semi-automatic HARDFACING

The perfect uniformity of Amsco Tube Rod insures smooth, trouble-free feed to the work. Note hardfacing alloy compactly enclosed within the steel tube.

Here are new, improved tube rods . . . *specially designed and engineered* for semi-automatic hardfacing! They have *proved* their speed, quality of weld and uniform deposit in actual use tests. In many cases, deposition rate has been increased up to 200% over other types of semi-automatic electrodes.

Amsco® Tube Rods are perfectly symmetrical, steel-shell wires, with the various alloys firmly enclosed and evenly distributed, for proper weld deposit. The steel shell is work-hardened to provide rods that will not deform or snarl during welding . . . that will run well in any semi-automatic welder. The rods are pre-lubricated, to insure constant and uninterrupted feeding to the work.

For additional information and technical data on Amsco Tube Rods or the Amsco MF Semi-Automatic Welder, see your Amsco Welding Distributor. Or write to Amsco Welding Department SA, Chicago Heights, Ill.

AMERICAN Brake Shoe COMPANY

AMSCO

American Manganese Steel Division • Chicago Heights, Ill.

OTHER PLANTS IN: DENVER, LOS ANGELES, NEW CASTLE, DEL., OAKLAND, CAL., ST. LOUIS; JOLIETTE, QUEBEC

"CROSS HEXCREEN"

A Honey of a Screen for More Strength

More Capacity and Engineered Performance

Look for this stamp on all "Cross" Products

The Sign of PLUS QUALITY for PLUS PERFORMANCE

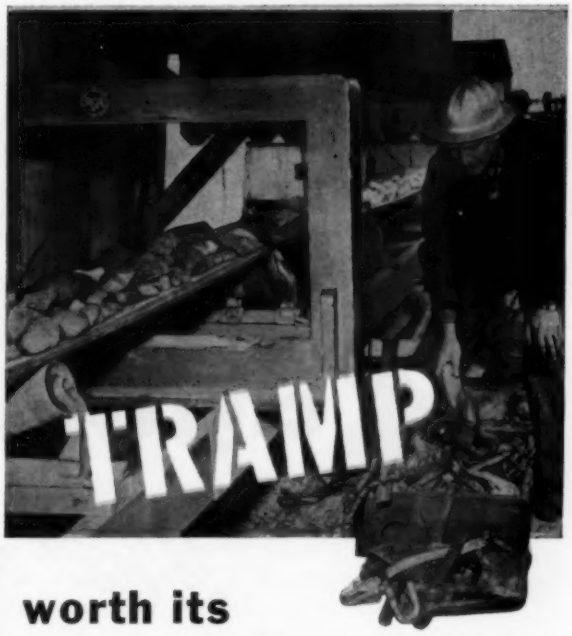
CROSS Perforated Steel Sections and Decks for VIBRATING — SHAKING — REVOLVING SCREENS

CROSS ENGINEERING COMPANY

Manufacturers • Carbondale, Pennsylvania • Telephone: 300

"CROSS" SERVICE AGENCIES in Principal Cities

New York, N. Y. — 101 Park Ave. — MUrray Hill 5-0253



worth its weight in GOLD!

Take a look at this tramp metal the RCA Metal Detector brought to light at the Union Sand and Gravel Company in Spokane, Wash.—Scraper bucket teeth, chain and repair links, tooth adapters, U-bolts, cable clamps, wire rope, iron pieces and assorted nuts and bolts. The metal's value as scrap is nominal, but the potential damage to expensive crushing machinery makes it worth its weight in GOLD! Says Mr. John W. Murphy, partner in this firm, "We surely wouldn't want to run our plant for even five minutes without the Detector."

All kinds of tramp metal—both magnetic and non-magnetic—are discovered automatically by the RCA Metal Detector. Wired to sound an alarm, spray-mark the metal area, or stop the conveyor when trouble threatens, the Detector prevents damage to crushers, pump liners and sizing screens . . . prevents downtime and repairs from cutting into profits . . . quickly pays for itself. Why not find out more about this valuable production aid? Use handy coupon.

MARK OF RCA QUALITY

ELECTRONIC

METAL DETECTOR

Radio Corporation of America
Dept. O-236, Building 15-1, Camden, N.J.
In Canada: RCA VICTOR Company Limited, Montreal

☐ Please send me complete information on the RCA Metal Detector for use in quarrying and mining.

☐ Have RCA field representative contact me.

NAME _____ TITLE _____

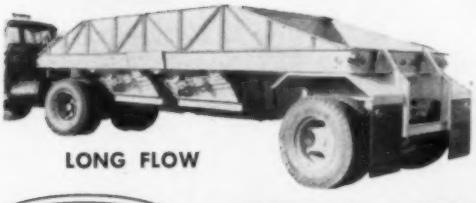
COMPANY _____

ADDRESS _____

CITY _____ ZONE _____ STATE _____

INCREASED PAYLOADS EASIER UNLOADING

CROSS FLOW



LONG FLOW

OMAHA STANDARD CENTER DUMP TRAILERS

Built to give you greater production at less cost. In all yardages — for any material, single or tandem axle. Single or double hopper. Write now for full information.

Distributorships Available in Some Areas

"Custom-Made Material Trailers — for ANY Commodity"

OMAHA STANDARD

2401 W. Broadway, Council Bluffs, Iowa

Bagorama

What is it?

Ask Us We Have It!

PERCY KENT BAG COMPANY, INC. KANSAS CITY HUmboldt 3-9800
OKLAHOMA CITY
MINNEAPOLIS
CHICAGO
BUFFALO
NEW YORK

PK

Since 1885

Carolina BIG TIRE Specialists

Earth Mover Tire Recapping Service CUTS COSTS PER MILE AND PER TON

WE GO ANYWHERE, ANYTIME, for Site Service, Pickup and Delivery

CAROLINA expert performing on-the-job service. A new tire for an earthmover may cost nearly $4000. YOU can cut this in half by using CAROLINA tested-and-proved methods. We specialize in servicing these tires for contractors, quarry and strip mine operations.
CAROLINA maintains more than 2000 service dealers in 30 states and some foreign countries.

WHAT OUR CUSTOMERS SAY:

The W. E. Graham Construction Co. of Maryland writes: "CAROLINA saves us thousands of dollars a year on tires. Recapping and repairing saves 50% of new tire cost, and the recaps run just as long."

SEE YOU AT THE ARBA ROAD SHOW IN JANUARY. WE WILL BE AT BOOTHS 8 AND 9. DROP IN TO TALK WITH OUR TIRE SPECIALISTS.

Write for full details

CAROLINA TIRE COMPANY • 232 N. Main St., Salisbury, N.C.

for road screening operations it's . . .

CF&I INDUSTRIAL SCREENS

For accurate screening . . . maximum resistance to abrasion, vibration, and fatigue . . . long screen life and the assurance of large tonnage output at low cost . . . you can depend upon CF&I Industrial Screens. That's because CF&I Screens are made from specially selected steel, then crimped and woven extra tightly to assure maximum usage throughout screen life—even when subjected to severe corrosion, abrasion, or high temperatures.

Next time you need industrial screens, take a tip from the builders of the Nation's highways and choose CF&I Industrial Screens. You'll find it a profitable choice.

4483 CF&I **SPACE SCREENS**

THE COLORADO FUEL AND IRON CORPORATION

THE COLORADO FUEL AND IRON CORPORATION—Albuquerque • Amarillo • Billings • Boise • Butte • Casper • Denver • El Paso Ft. Worth • Houston • Lincoln (Neb.) • Los Angeles • Oakland • Oklahoma City • Phoenix • Portland • Pueblo • Salt Lake City • San Antonio San Francisco • Seattle • Spokane • Wichita

WICKWIRE SPENCER STEEL DIVISION—Atlanta • Boston • Buffalo • Chicago • Detroit • New Orleans • New York • Philadelphia

CF&I OFFICES IN CANADA: Toronto • Montreal **CANADIAN REPRESENTATIVES AT:** Calgary • Edmonton • Vancouver • Winnipeg

Hendrick H ... Means High Quality for Quarries

Hendrick . . . Pioneer Perforator of Special Quality Steels for 80 Years

Take Hendrick's 80 years of experience in selecting and specifying the best analyses of steel for the crushed stone. industry. Add to it Hendrick's 80 years of experience in perforating plate for vibrating screens and you end up with a combination that can't be beaten.

That's why Hendrick Perforated Plate stands up longer and affords more accurate sizing. No other screening medium can compare to it for uniformity of mesh, for non-blinding clearance and for long, trouble-free service life. Hendrick perforated *H* quality steel is supplied in any desired size or shape of openings.

It can also be furnished flat or corrugated. Write for details.

SEE OUR CATALOG IN SWEET'S

Hendrick
MANUFACTURING COMPANY
39 DUNDAFF STREET, CARBONDALE, PA.
Sales Offices in Principal Cities

PERFORATED METAL • PERFORATED METAL SCREENS • WEDGE-SLOT AND HENDRICK WEDGE WIRE SCREENS • ARCHITECTURAL GRILLES • MITCO OPEN STEEL FLOORING • SHUR-SITE TREADS • ARMORGRIDS • HENDRICK HYDRO-DEHAZER.

H&L
Teeth that really dig!

H&L TOOTH CO.
1540 SO. GREENWOOD AVE., MONTEBELLO, CALIF.

Still Available!

NEWEST
PORTLAND CEMENT
PLANT MAP

This map shows the locations of all the portland cement plants and distributors now operating in the United States, Canada, Mexico, Alaska, Hawaii, and Cuba, plus those that will be completed in 1956. These plants are listed alphabetically, by state and city, so they can be located easily. Production capacity in barrels, types of process, and brand names of each firm's products are also shown.

The map is 34 by 40 inches and is printed in black and white on heavy, durable 60-lb. paper stock. Prices are as follows:

1-10 maps	$1.00 each
11-25 maps	$ .75 each
more than 25 maps	$ .50 each

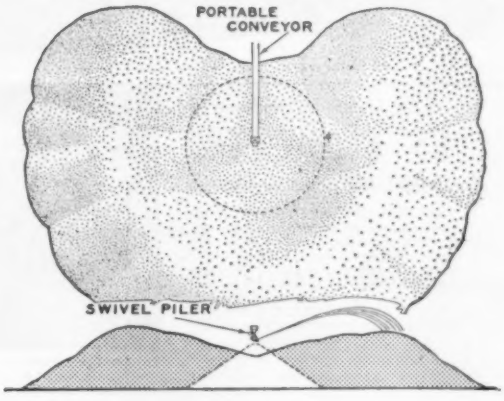
Please make your request for these maps on your company letterhead. Also, send along a check, cash or money order to cover the number of maps you wish to purchase.

PIT AND QUARRY PUBLICATIONS
431 S. Dearborn St. • Chicago 5, Ill.

S-A CONVEYOR MOUNTED SWIVEL-PILERS

Increase Storage Capacity up to 10 Times!

Reduce handling and labor costs by quickly and easily mounting an S-A Swivel-Piler on the discharge end of your conveyor. Increases your storage capacity 10 times by efficiently throwing material in any direction, over an arc of 270°. Eliminates frequent and costly conveyor moves. This powerful, centrifugal-action thrower unit, furnished in both 10" and 16" sizes, handles up to 150 tons per hour of Grain, Sand, Crushed Stone, Coal, Dry Bulk Chemicals and almost any material in granular or lump form in lump sizes up to 2". User always has complete control over path of discharge.



Illustrations (above) show how the addition of an S-A Swivel-Piler will increase the storage volume of a conveyor up to 10 times, without moving the conveyor. In storing, the pile of material starts to form at the outer end of the trajectory, without any adjustment in the throwing angle.

S-A BELT CLEANER

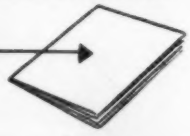
Protects and extends the life of valuable belts. The spring-blade wipes wet or dry particles from belts. Adjustable to any width... easily installed ...no moving parts...no power drive required. Request Bulletin 1754.

S-A HOLDBACKS

Mounts on headshafts of belt conveyors and bucket elevators to prevent reversal under load in case of power failure. Safeguards personnel and equipment. Quickly and easily mounted... engages with instant positive grip but without shock. No ratchet to become fouled. Request Bulletin 155.

IN STOCK FOR IMMEDIATE DELIVERY!

—WRITE TODAY



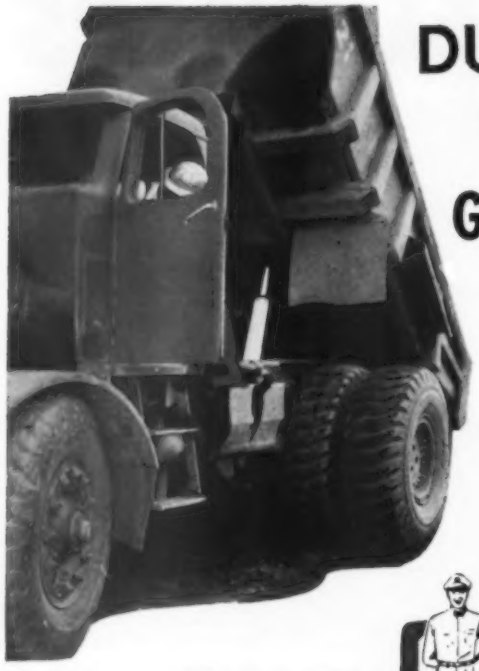
... for complete information.

Request Bulletin 655

STANDARD PRODUCTS DIVISION

STEPHEN S-ADAMSON MFG. CO.

20 Ridgeway Ave. Aurora, Illinois



DUMP Your Tire Troubles

Specify SOUTHERN GIANT TIRE RETREADS

Specify Southern Tire Company's retread service and forget your giant tire maintenance worries. Save money and time — Southern Tire retreads cost 40% less than new tires, and Southern Tire representatives pick up and deliver at your job site after work hours. You save downtime expense and get new tire mileage. Call your tire dealer—specify Southern Tire retreads.

ROCK SERVICE, TRACTION TYPES, OR RIB TREADS
All sizes from 1100 x 24 to 2700 x 33, and new sizes 29.5 x 25, 29.5 x 29 and 33.5 x 33.

GIANT 3-SECTIONAL MOLDS
No buffing to breaker strips regardless of growth. Top quality rubber.

One of the World's Largest Giant Tire Retreaders

SOUTHERN TIRE COMPANY
1414 Broadway
SHEFFIELD, ALA.
Phone Collect
Sheffield 4740

Quick starts down to

65° BELOW ZERO

for Diesel and gasoline engines

SPRAY STARTING FLUID, with the propellent used in the pressurized can, insures quick starts for Diesel and gasoline engines in temperatures as low as 65° F. below zero and withstands 180° F. heat. This combustible propellent was developed after two years of research. SPRAY STARTING FLUID pressurized with our inert propellent is absolutely safe and odorless in storage.

SPRAY STARTING FLUID is sold through distributors, wholesalers and their dealers located throughout the United States and Canada.

SPRAY PRODUCTS CORPORATION
P. O. BOX 584 • CAMDEN 1, NEW JERSEY

Attractively Bound Pit & Quarry Volumes

Six issues, Jan. through June or July through Dec., bound in best grade Dark Green washable buckram, imprinted name on cover, cost but $4.15 per volume.

- Bound journals serve as an immediate reference for research and information.
- Ship journals parcel post.
- Within thirty days after receipt, bound volumes will be shipped prepaid anywhere in the U.S.A.
- Full remittance must accompany order.

PUBLISHER'S AUTHORIZED BINDERY SERVICE
5809 W. Division St. Chicago 51, Ill.

$64 ANSWER to Wear-Resistance Problems

ADMIRO HEAT TREATED ALLOY STEEL

Recommended Applications: Relining and repairing truck beds, crushers, chutes, bins, hoppers, rock recovery equipment. Special uses in Mining, Quarrying, Cement and Aggregate Plants.

Write for Bulletin

THAT'S RIGHT—ADMIRO Heat Treated High Tensile Alloy Steel efficiently protects buckets against severe abrasion and heavy impact. Throughout industry, experienced operators standardize on ADMIRO to boost machine service life and reduce expensive down-time. Wherever used ADMIRO assures lower repair and maintenance bills.

COMPLETE FABRICATING FACILITIES

Welding—Rolling—Forming

Intricate Shapes Cut to Specification

ADMIRAL ALLOY STEEL CORP., 850 Euclid Ave., Cleveland 14, Ohio
ADMIRAL ALLOY STEEL CORP. of Texas, 2802 Rector St., Dallas 15, Texas

We're looking forward to seeing many old friends and meeting new friends at the Statler Hotel during the NSGA Convention at Los Angeles.

CHARLES E. WOOD COMPANY
906 NORTH WATER ST. • MILWAUKEE 2, WISCONSIN

MAKERS OF

Trade Mark Reg.

AUTO VORTEX CLASSIFIERS

DREDGE SLEEVE CLAMPS

Sturdy • Practical • Dependable • Economical

Furnishes a positive seal for round flexible joints. Used by leading dredging and hydraulic sand-and-gravel operators, and the U.S. Engineering Corps. This Multi-use chain sleeve clamp is easy to apply... positive in action. Write for illustrated folder, today.

THE BLACK BROTHERS CO., INC.
9th Ave. at 4th, Mendota, Illinois

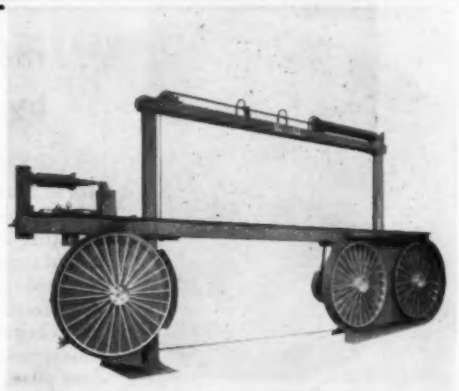
THE LONG-WIRE STONE SAW
another GILCO "first" for cutting

• Granite • Monumental Stone • Marble • Structural Stone

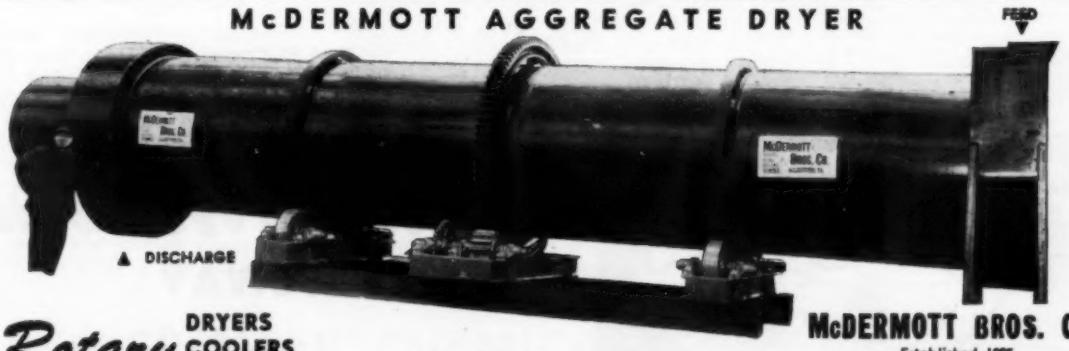
Developed to cut in excess of saw capacity without wire change, the self contained GILCO LONG-WIRE has a 10 ft. x 5 ft. cutting capacity and carries 200 ft. of cutting wire. Newly designed features makes this an ideal saw where space is limited. GILCO LONG-WIRE SAWS are in successful operation and proving themselves daily.

There's a GILCO Wire Stone Saw to meet all contour and/or straight cutting requirements. Write for bulletin 200. Dept. LWPQ.

L. M. GILBERT COMPANY
1505 Race Street, Philadelphia 2, Pa. Cable: LMGILCO



McDERMOTT AGGREGATE DRYER



Rotary DRYERS COOLERS KILNS

Write for Information

McDERMOTT BROS. CO.
Established 1895
Allentown, Pennsylvania

this is Pure Limestone

Above is a section of a test core. The minimum of dark spots indicates top-grade limestone, ideal for chemical lime, calcium carbide and other important purposes.

	DHL-1-1	DHL-1-2	DHL-1-3
SILICA (S_1 O_2)	.36%	.30%	.34%
IRON OXIDE (Fe_2 O_3)	.072	.043	.049
ALUMINA ($A1_2$ O_3)	.21	.20	.19
LIME (CaO)	55.00	54.90	55.40
MAGNESIA (MgO)	.65	.62	.51
SULPHUR (S)	.012	.011	.015
PHOSPHORUS (P)	.006	.006	.009
IGNITION LOSS	43.20	43.50	43.20
CALCIUM CARBONATE (Calculated)	97.90	97.72	98.51
MAGNESIUM CARBONATE (Calculated)	1.36	1.30	1.07

. . . these are certified typical analyses by an independent research organization*

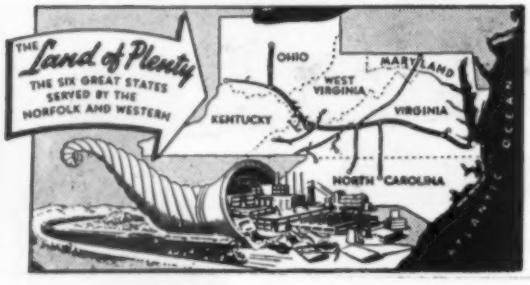
Along the Norfolk and Western, more than 100 million tons of premium-grade limestone are awaiting cement and chemical lime manufacturers. This vast quantity is ample to meet any foreseeable industrial demand!

Laboratory tests reveal that this limestone is more than 97.5 per cent pure, and some of the deposits range to an amazing 100 feet in thickness. The beds are so situated that they can be mined or quarried economically.

We invite you to confirm these scientific findings. Contact our plant location specialists for detailed information, which will be furnished to you promptly, in confidence and without obligation.

Write, Wire or Call—

L. E. Ward, Jr., Manager
Industrial and Agricultural Dept.
Drawer PQ-745, (Phone 4-1451, Ext. 474)
Norfolk and Western Railway
Roanoke, Virginia



Norfolk and Western RAILWAY

* Report prepared by Pittsburgh Testing Laboratories, Pittsburgh, Pa.

BETTER FRAGMENTATION with Spencer Prilled Ammonium Nitrate now permits stripping units to move up to 25% more material. Read below why Spencer Prills are superior to other types of nitrate solids!

Cut Blasting Costs 50% with Spencer Prilled Ammonium Nitrate

Independent laboratory tests prove that porous structure of Spencer product develops more effective and higher speed blast.

Because ingredients cost less, and the mixing process is so much simpler, blasting costs can be cut up to 50% by using Spencer Prilled Ammonium Nitrate. At the same time, this product produces better fragmentation, yielding up to 25% more material.

The basic ingredient is Spencer Prilled Ammonium Nitrate. Impartial laboratory tests have now proved that the porous structure of these prills makes them the most effective and highest-speed blasting agent of any manufactured nitrate solid. This conclusion has been further verified by extensive field tests.

More even distribution made possible by the prills is one important reason for the superiority of Spencer Prilled Ammonium Nitrate. And, since the deflagration of a solid explosive is layer by layer from the surface of the particle, the additional surface available on the prill speeds up decomposition.

Contrary to popular opinion, the lesser bulk density of prilled ammonium nitrate actually *increases* rather than decreases the energy of the explosion. This fact is verified, not only by such an authority as the ENCYCLOPEDIA OF CHEMICAL TECHNOLOGY, but also by comparative field tests. And more intense explosion means better fragmentation.

Not explosive in its normal form, Spencer Prilled Ammonium Nitrate can be handled safely, and because the mixing operation is so simple and safe, it can be done right at the mine location.

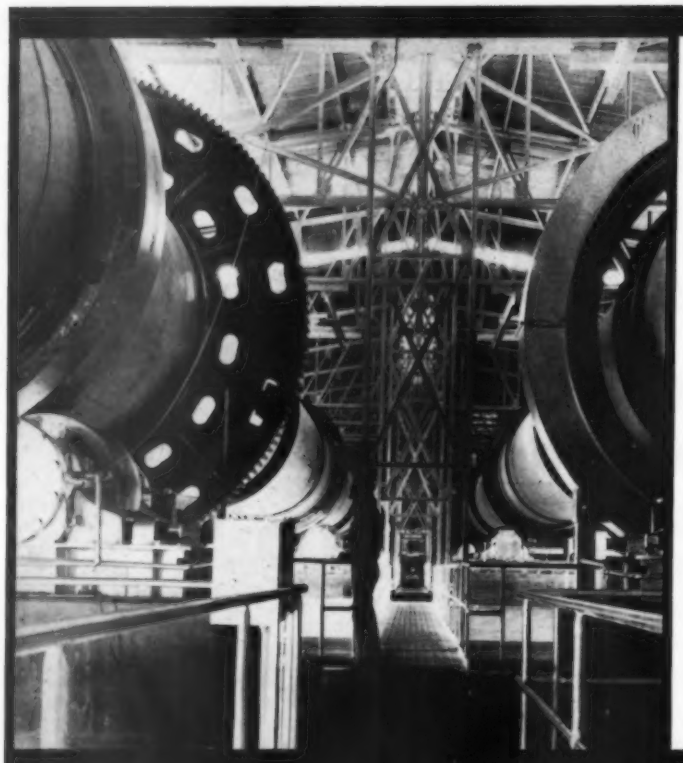
As supplier of the original nitrate used in the early stages of developing the Akremite Blasting Process, Spencer Chemical Company has been closely associated from the very beginning with this project to create less expensive blasting techniques.

For more specific information about low-cost blasting for coal, iron, limestone or construction, write to Spencer Chemical Company. We will be glad to supply you with any needed technical assistance or service.

SPENCER CHEMICAL COMPANY

610 Dwight Bldg. • Kansas City 5, Mo. BAltimore 1-6600

The Bowling Champ
buys a custom-made ball
because he gets
something **EXTRA**



the profit-wise cement producer

BUYS TRAYLOR ROTARY KILNS for the same reason

Traylor Rotary Kilns have a world-wide reputation for delivering a bonus of extra production over other kilns of comparable capacity. "Traylor-made" for the individual installation, Traylor Rotary Kilns have been built to 12′ 0″ in diameter and to 450′ 0″ in length. Send for Traylor Bulletin No. 11-121 containing complete information.

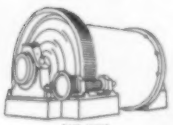
TRAYLOR ENGINEERING & MFG. CO.
915 MILL ST., ALLENTOWN, PA.
Sales Offices: New York—Chicago—San Francisco
Canadian Mfr.: Canadian Vickers, Ltd., Montreal, P.Q.

the experts agree . . . there's nothing like

TRAYLOR-MADE

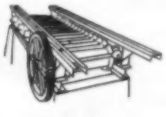
equipment for peak performance

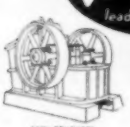
A Traylor leads to greater profits


BALL MILLS

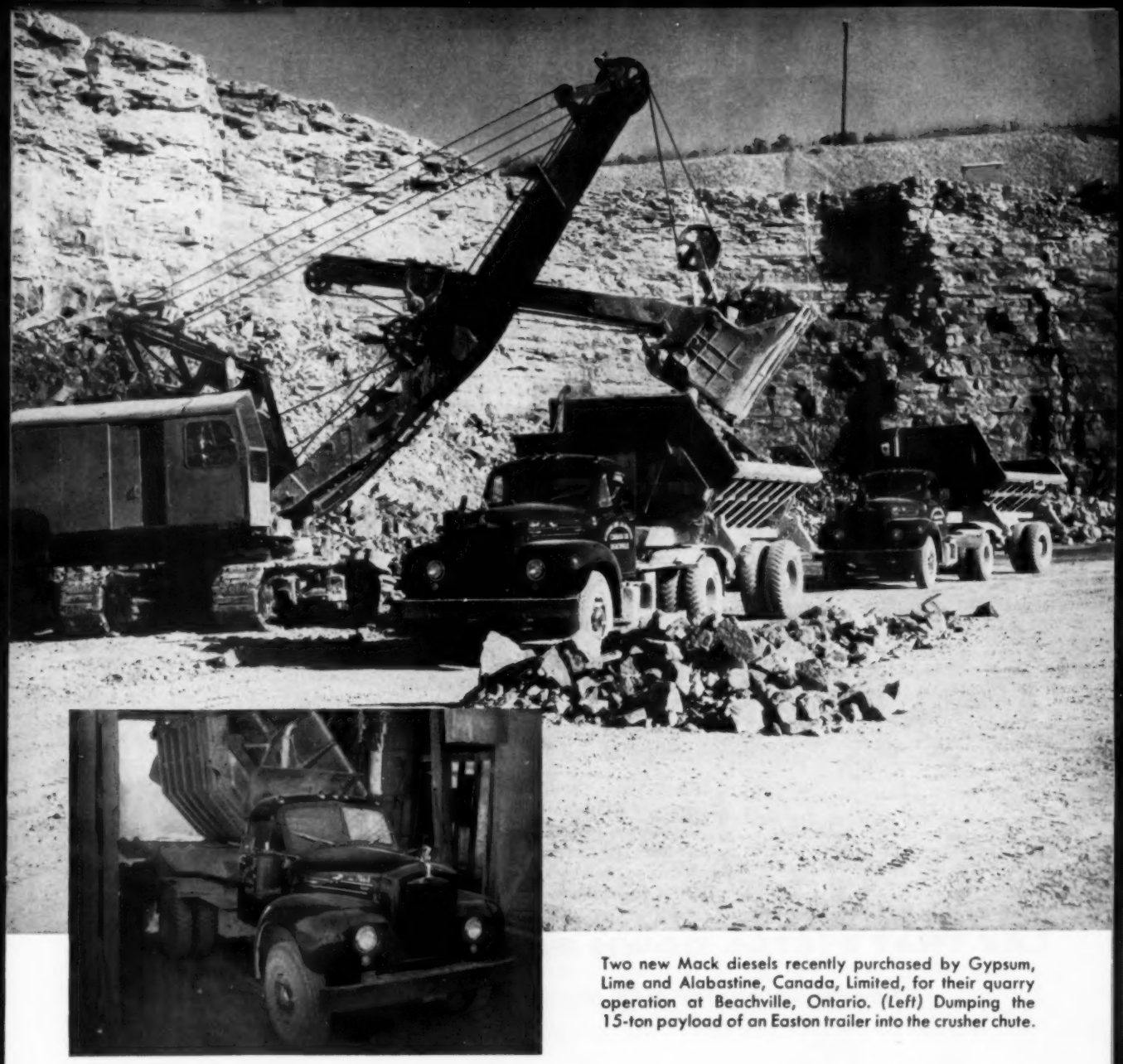
ROTARY KILNS

PRIMARY GYRATORY CRUSHERS


APRON FEEDERS


JAW CRUSHERS

SECONDARY GYRATORY CRUSHERS



Two new Mack diesels recently purchased by Gypsum, Lime and Alabastine, Canada, Limited, for their quarry operation at Beachville, Ontario. *(Left)* Dumping the 15-ton payload of an Easton trailer into the crusher chute.

"26 years of unmatched performance"

That's the way Mr. R. S. Adams, Plant Manager at Beachville, explains his company's preference for Macks. "Ever since 1931, when we purchased our first Macks—AC models equipped with hard tires—we have used Macks almost exclusively. Our old AC's operated until 1942. At the present time, we have eight Macks in daily operation—five diesels and three gas-powered. The diesels, of course, have been very successful, and eventually we will use them exclusively for stone hauling."

Here's a company that's sold on the stamina and inherent hauling economy of Macks—has been for 26 years. They know that they can depend on Macks. And little wonder! Today's Mack engines often exceed 200,000 miles before overhaul . . . frames, axles, and transmissions are built to withstand a million miles and more.

Want more proof? Let your local Mack representative show you many more operators who depend upon Mack for top truck performance and economy. Mack Trucks, Inc., Plainfield, New Jersey. In Canada: Mack Trucks of Canada, Ltd.

MACK
first name for
TRUCKS

4698

LAY THAT PISTOL DOWN PAL

There's an easier way out of your bearing troubles

Russian roulette may seem to be the easiest and quickest way out when bearings start to go and production starts to stop. But quicker still is a replacement from an authorized **SKF** distributor. He's the man to see for *all* types of antifriction bearings and pillow blocks, and he's the man who will give you prompt service 24 hours a day. This factory trained specialist is ready to help you select the right bearing for the job. His broad experience in solving problems of maintenance means proper guidance in protecting your bearings for longer life. Doing business with the right distributor—the **SKF** distributor—is good business and good assurance of getting the bearings you need when you need them.

7746

SKF®

EVERY TYPE—EVERY USE

- *Ball Bearings*
- *Cylindrical Roller Bearings*
- *Spherical Roller Bearings*
- *Tapered Roller Bearings ("Tyson")*

*Reg. U.S. Pat. Off. Tyson Bearing Corporation

SKF INDUSTRIES, INC., PHILADELPHIA 32, PA.

Much of the material to be moved is trap rock, one of the hardest stones in New England. Three-layer, all-steel, grid-type bowl with tool-steel floor resists shocks of loading. Big, wide bowl opening with low rear entry, is an easy target for this 2-yard shovel.

"Maneuverable . . . that's why we bought it"

Angelo Tomasso, Inc.

hauls 1,200 tons of hard trap rock per day to a crusher in their quarry at New Britain, Connecticut. To an equipment fleet at this quarry that included a 2-yard shovel, a 15-ton Rear-Dump, and a 9-ton dump-truck, the company added a 22-ton C Tournapull Rear-Dump.

"We bought this machine in anticipation of working on a shelf. It is very narrow up there and we need to maneuver around...one false move and the machine would drop 90 feet," says A. Tomasso, Jr.

Maneuver safely on narrow roads

Tomasso and his crew soon found that Tournapull Rear-Dumps are well equipped to work safely on narrow shelves such as those encountered on this job.

Power steer makes the Tournapull easy and quick to maneuver. Prime-mover can turn 90° right or left for getting around in tight quarters.

In any emergency, Tournapulls' four-wheel multi-disc air brakes (with more braking surface on one wheel than most haulers have on all four) provide an extra bonus of safety. You can always depend on the Tournapull to stop instantly. Low center of gravity, good visibility, and front-wheel drive also contribute to Tournapulls' safety.

In the Tomasso quarry, rock crusher was located about 700 feet down 5% grade from the loading shovel. Rear-Dumps, hauling 18 tons of shot trap rock, traveled over the crushed rock haul-road in third gear, at speeds up to 11½ mph.

Comments Operator Albert Buchiere, "Trucks can't even get close to these machines. I've run about every type of haul unit there is and these 'Pulls are the best."

Cut lubrication time

Not only did the Tournapulls save time and money on hauling, but, according to Mr. Tomasso, it takes only ⅓ as long to lubricate the C Rear-Dump as it does to lubricate an ordinary dump-truck.

If you have hauling to do, over narrow roads or in close quarters, you will want more information on Tournapull Rear-Dumps' high production. Available in 11, 22, and 35-ton capacities, a size to fit your requirements. Write for full details.

After one of New England's disastrous hurricane-floods, this Tournapull Rear-Dump took Civil Defense officials on a survey of damage in the area. It was the only unit in the area that could safely drive through the high water. Tournapull also helped to haul 270,000 yards of borrow and gravel over average 3½-mile distances to replace 4½ miles of the road, between Unionville and Collinsville, Connecticut.

When job report was taken, Tournapull was dumping into a 42 x 40-inch hopper. A flick of a switch activates hoist motor. Body lifts quickly, swings behind rear wheels to dump clean over bank, or into grizzly. Streamlined bowl sheds material readily. Body can also be held in any desired position for spreading on the run.

Tournapull—Trademark Reg. U.S. Pat. Off. 966-Q-b.

LeTourneau-WESTINGHOUSE Company, PEORIA, ILLINOIS

A Subsidiary of Westinghouse Air Brake Company

WHERE QUALITY IS A HABIT

IN THE LONG RUN
...B&W Type EL Pulverizers

Wherever these "extended engagement" pulverizers are used for direct-firing of rotary kilns they have established long and impressive performance records.

BECAUSE:

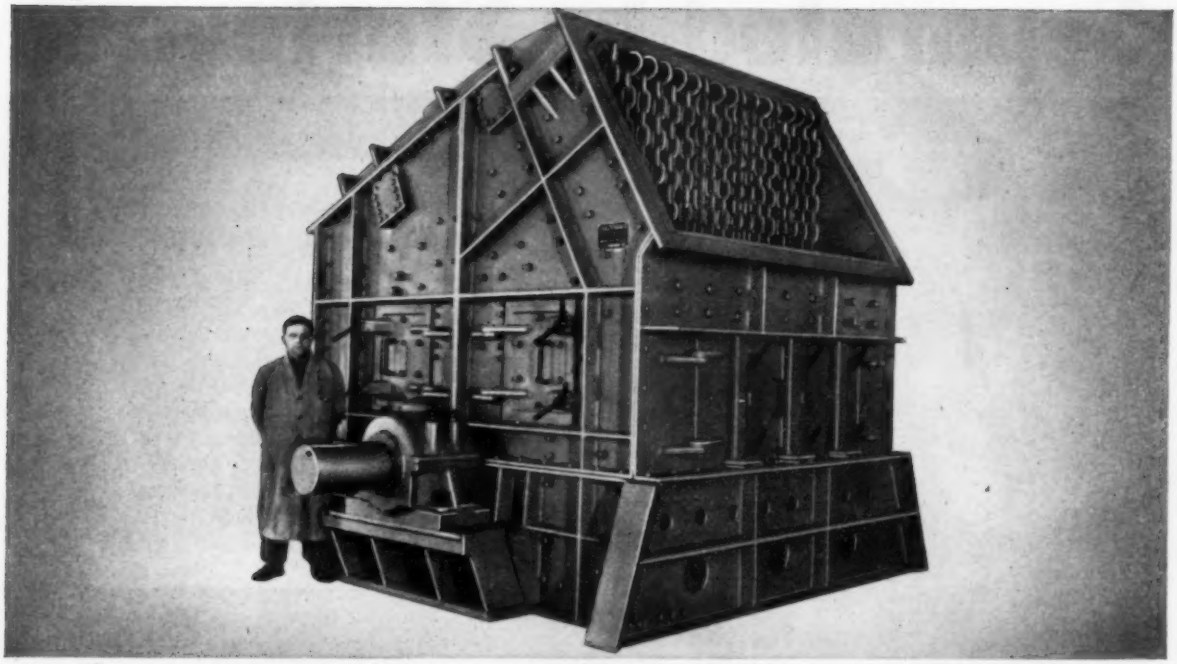
1. Grinding zone has no bearings or parts to be lubricated.
2. No internal adjustments are required.
3. Grinding elements are made of wear-resistant, long-life metals, with grinding balls held to close spherical tolerances.
4. Fully-enclosed reduction gear drive, with anti-friction bearings, and integral pump for automatic pressure lubrication.
5. Tramp iron and pyrites are automatically rejected, usually without interruption of service.

These qualities plus many years of manufacture and application combine to give you constant, high-level service for modern kiln operation. The Babcock & Wilcox Company, Boiler Division, 161 East 42nd Street, New York 17, N. Y.

BABCOCK & WILCOX
BOILER DIVISION

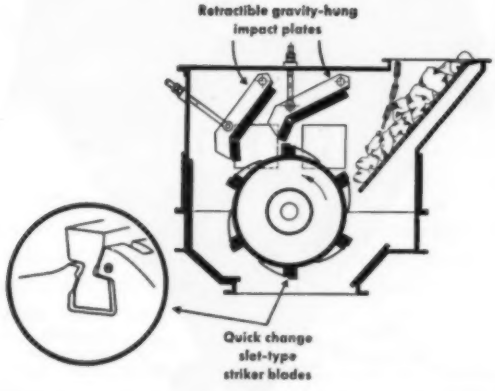
C-212

RE-CRUSHING by IMPACT



Shown in photograph: HAZEMAG Impact Crusher, Model #AP5BR. Rated Capacity: up to 500 tons per hour.

NEW ECONOMIES IN RE-CRUSHING BY IMPACT



Re-crushing by impact represents a significant advance in the technique of aggregate production. With the ever increasing demand for the finer sizes—and the emphasis on ⅜″ stone—the premium sizing of impact crushing is of the greatest importance.

The HAZEMAG impactor, equipped with "fineness-control", regularly re-crushes to 75-80% minus ½″ and can be set still finer if desired. As is usual with impactors, the product is of cubical shape with "flats" eliminated.

OVER 1200 HAZEMAG IMPACT CRUSHERS NOW INSTALLED ALL OVER THE WORLD

HAZEMAG M·B·H· IMPACT CRUSHERS RAPID DRYERS

HAZEMAG

SALES AND ENGINEERING OFFICES THROUGHOUT THE WORLD

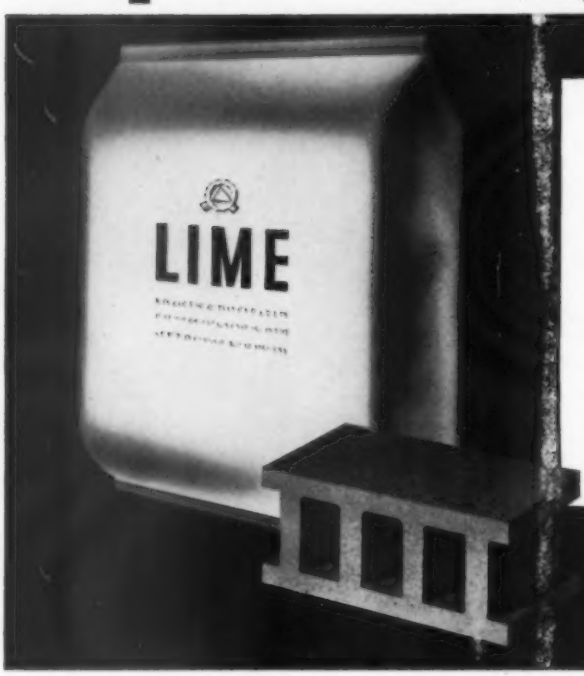
IN CANADA
HAZEMAG (CANADA) LTD.
310 Victoria Ave. - Suite 307-4
Westmount, P.Q., Canada

IN THE U.S.
RICHARD E. KLEINHANS
International Industrial Sales
122 East 42nd Street
New York 17, New York

IN MEXICO
DIESEL MEXICANA, S.A.
Reforma 20, Desp. 102,
Mexico D.F. City

Munster (Westf.) Germany

Tailings Go to Market - Separated by Sturtevant



10% WASTE SCREENINGS CLASSIFIED INTO PROFIT-MAKING PRODUCTS

Hills of bothersome tailings at a Mid-western rock-crushing plant are being classified into saleable products — agricultural limestone and sand for cement blocks — by a 10 ft. Sturtevant Air Separator. No extra men are needed to supervise the almost automatic unit — operating in rugged outdoor service. Screenings previously thought to have no commercial value are now going to market — **at a profit.**

THE SEPARATOR THAT UPPED 40 TO 400 MESH OUTPUT AS MUCH AS 300%

Sturtevant Air Separators range from 3 to 18 ft. in diameter: deliver fines from 40 to 400 mesh at rates as high as 65 tons per hour . . . in the cement industry, have a tested record of increasing mill capacities from 25 to 300% while lowering power consumption as much as 50% — when used in closed circuit with grinding mills.

Designed to cut costs and build profits, Sturtevant Air Separators give a lifetime of high-efficiency, low down-time service. Rugged construction plus easy accessibility for quick maintenance (typified by the "Open-Door" design in other Sturtevant equipment) assure more output per machine year.

Write today describing your problem. Please include information on material, process and desired capacity.

Address: Sturtevant Mill Company, 104 Clayton St., Boston 22, Mass.

What Can a Sturtevant Air Separator Do in Your Pulverizer System?

Controlled centrifugal whirl by balancing forces separates rapidly, efficiently, cement, lime, clay, talc, ceramics, refractories, phosphates, coal and many other materials. Also used for selection of pigments, limestone, fillers, plastics, oyster shells and abrasives. Write for Sturtevant Bulletin No. 087.

STURTEVANT

Dry Processing Equipment

The "OPEN-DOOR" to *lower* operating costs over *more* years

CRUSHERS • GRINDERS • MICRON-GRINDERS • SEPARATORS
BLENDERS • GRANULATORS • CONVEYORS • ELEVATORS

The 101-SE is a highly portable plant. The frame is extra strong to hold rigid alignment of all equipment and drives. A rocker beam with full width axles supports most plant weight. Four wheels, each with dual tires, oscillate separately to compensate for rough terrain.

Big Production at your Fingertips with the New AUSTIN-WESTERN push-button controlled Diesel-Electric 101-SE

Here's a high output, mobile gravel plant that combines top efficiency with modern ease of operations and low maintenance. It is DIESEL-ELECTRIFIED, PUSH-BUTTON OPERATED—a triumph in crusher engineering.

All plant components except jaw and roll crushers are electrically operated in this closed circuit plant. All operations are powered with individual electric motors through short coupled V-belt drives, instantly controlled from the operator's platform. Chains, idlers, sprockets and clutches, normal cost items on mechanical plants, are eliminated.

Regardless of load, all components operate at peak efficiency at all times, delivering top production and accurately sized aggregates. A single convenient push-button station controls the plant.

See your nearby Austin-Western distributor . . . or write Construction Equipment Division, Baldwin-Lima-Hamilton Corporation, Lima, Ohio, for illustrated booklet.

COMPARE . . . then you'll specify AUSTIN-WESTERN

Welded steel plate crusher frame for high strength without weight of cast steel frame.

Inclined positive-throw type vibrating screen.

All bearings are anti-friction type.

Machined steel toggle plate for absolute protection of crusher.

DISTRIBUTORS IN PRINCIPAL CITIES OF THE WORLD

AUSTIN-WESTERN
CRUSHING, SCREENING AND WASHING EQUIPMENT

BALDWIN BLH LIMA-HAMILTON

BALDWIN-LIMA-HAMILTON
Construction Equipment Division — LIMA WORKS

OTHER DIVISIONS: Austin-Western • Eddystone • Electronics & Instrumentation
Hamilton • Loewy-Hydropress • Madsen • Pelton • Standard Steel Works

Will this blot spread... or shrink?

NOTHING STRIKES so brutally at human lives as a slum.

Yet of America's many millions of homes, the blot that is a slum covers more than 1 out of every 10 . . . and nearly one-half of all our homes are urgently in need of repair and basic improvements.

Will the blot go on spreading? Or will a concerted, nationwide attack on the causes of slums shrink it, year by year, until it is wiped out? Today, this is a challenge to every American . . . a challenge that *must* be met.

Your community . . . your problem!

A slum reaches across blocks, across miles, to sit on your doorstep and demand a price.

You pay it in the threat of crime and juvenile delinquency to your family. You pay the price in higher personal property taxes to fight the disease and crime and poverty that are slum-bred. You pay personally when the value of your home sinks as community deterioration takes another step closer.

Your *firm* pays when the community where you do business goes downhill. Slums automatically mean lower purchasing power and less effective labor.

Good citizenship is good business

It's good citizenship and good business both for your firm to join efforts to check housing decay . . . to stop slums before they start. In fact, it's the *responsibility* of every business, as it is of every other good citizen, to support community improvement efforts.

Some slums are beyond repair. They should be torn down and a fresh start made. Others can be remodeled, made to conform to better living standards. So it is up to you to get behind every sound program which seeks to provide adequate housing for all our people.

Adding your support to the efforts of the millions already attacking the problem, your firm can help stop slums cold and put America's housing standards at a new height.

How to get into action

A group of Americans from every walk of life has formed a new, non-profit organization to help combat home and community deterioration — The American Council To Improve Our Neighborhoods . . . A.C.T.I.O.N.

Send for a free copy of "ACTION." It explains what A.C.T.I.O.N. is and proposes to do. It also lists booklets, research reports, check-lists, and other material which can help you protect the housing health of your community. Address P. O. Box 500, Radio City Station, New York 20, N. Y.

ACTION

American Council To Improve Our Neighborhoods

Now . . . most power of the low-priced 3

New DODGE *PowerGiants*

1957 line-up gives you up to 232 hp.

Dodge tops the low-priced field in V-8 power by a big margin—actually delivers as much as *31% more!* This *extra* power in reserve saves engine strain . . . wear . . . excessive repairs. What's more, Dodge V-8's use *regular* gas, help keep your cost per ton-mile *down!*

Extra payload capacity. You can haul more—up to 73% more in the 300 model pick-up, for example.

Extra handling ease. Exclusive push-button automatic transmission*! Sharpest turning and easiest steering in the industry!

See the new *Power Giant* line-up now at your Dodge dealer's. You'll see features that prove it pays to get your Dodge dealer's deal before you decide on *any* truck.

**Available on all low-tonnage and Forward-Control models.*

DODGE meets your hauling needs!

Conv. Models	Max. G.V.W.	Max. G.C.W.	Max. V-8 HP.
100	5,100 lbs.	—	204
200	7,500 lbs.	—	204
300	8,800 lbs.	—	204
400	15,000 lbs.	26,000 lbs.	197
500	18,000 lbs.	32,000 lbs.	197
600	21,000 lbs.	35,000 lbs.	197
700	23,000 lbs.	45,000 lbs.	216
800	25,000 lbs.	55,000 lbs.	222
900	30,000 lbs.	65,000 lbs.	232
Forward-Control Models			
P300	9,000 lbs.	—	204
P500	15,000 lbs.	—	204
C.O.E. Models			
C500	18,000 lbs.	32,000 lbs.	197
C600	21,000 lbs.	35,000 lbs.	197
C700	22,500 lbs.	45,000 lbs.	216
Tandem Models			
T700	32,000 lbs.	45,000 lbs.	216
T800	36,000 lbs.	55,000 lbs.	222
T900	46,000 lbs.	65,000 lbs.	232

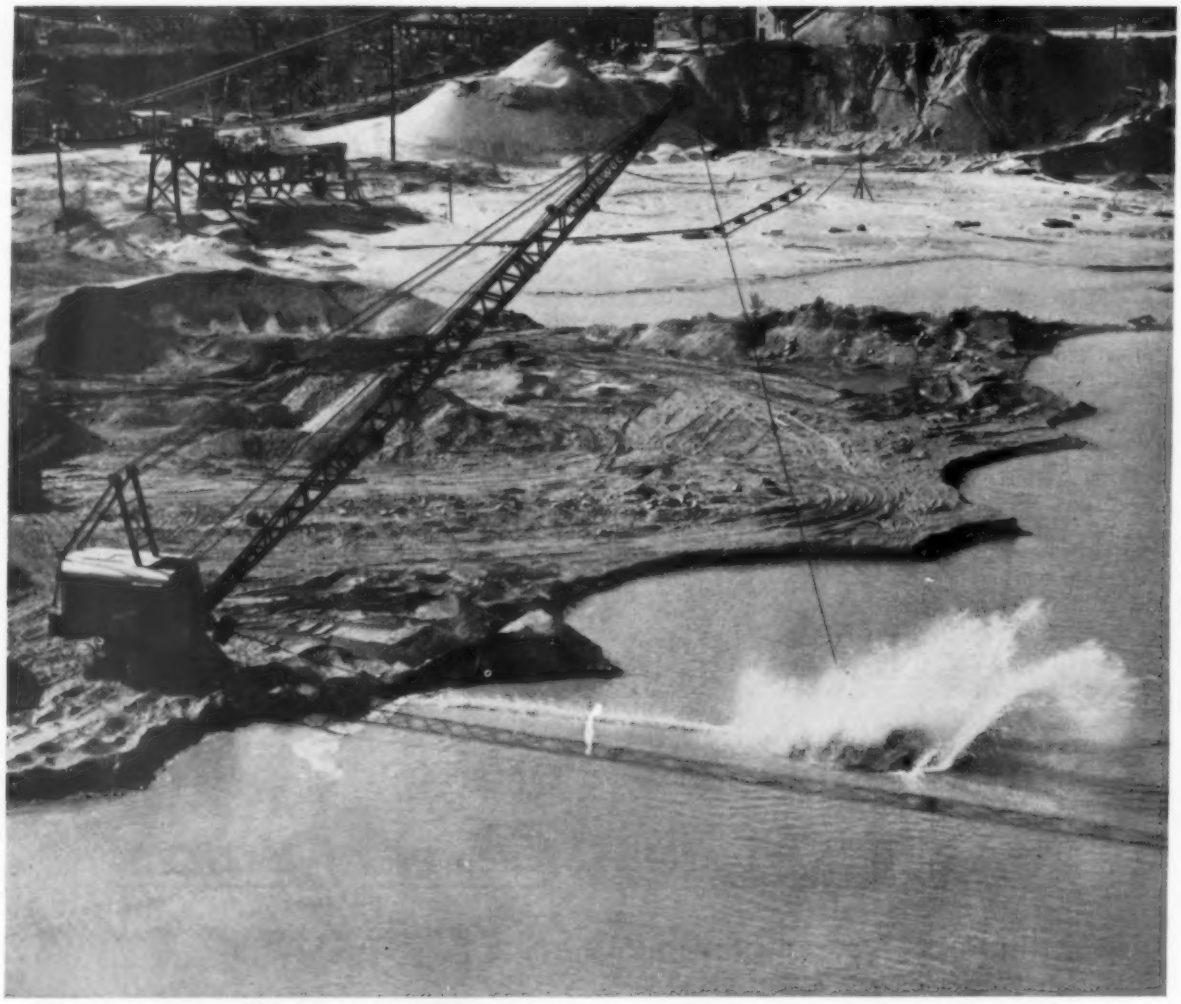
DODGE TRUCKS

WITH THE *FORWARD* LOOK

Pick-ups

Stakes

Tractors



Big Producer

Manitowoc 2-yd. Model 3000 Moves up to 2500 yards in 8 hours

Put a Manitowoc in your pit and watch daily production figures go up! That's what State Washed Sand and Gravel Co. of Milwaukee did when wet pit conditions called for a big output dragline. The company's 2-yd. Manitowoc Model 3000 rig with an 80′ boom has handled as much as 2500 yards of sand and gravel in an 8-hour day. During the year-and-a-half on the job, machine downtime and maintenance has been negligible.

Big Production

Advanced Manitowoc engineering has eliminated all but 17 gears and pinions for direct power flow from the engine to the bucket. This simplicity of design is possible with Manitowoc's exclusive sliding pinion arrangement which permits the use of one set of clutches to drive travel, swing and boom hoist.

Greater Stability

Long, wide-spread crawlers and a rugged, one-piece carbody give you the rock-steady stability needed for full-capacity buckets at long reach. A low center of gravity assures perfect balance for complete safety and top productivity. Large diameter roller path and big main rollers insure even load distribution and perfect stability.

Greater Operator Efficiency

These optional features will enable your operator to always work at top capacity: *Torque Converter* tailors power output to the need. You get smooth performance in every phase of operation. *Air Controls* make operator's job easier, less fatiguing without destroying important "feel" of the rig. *Swing Brake* — manual or air type — slows swing speed and holds the unit in exact position for precise spotting.

Compare Manitowoc!

Your helpful Manitowoc distributor has complete information and specifications on the Manitowoc Model 3000. Compare this unit with comparable rated rigs and you'll put a Manitowoc in your pit today!

MANITOWOC ENGINEERING CORP.
MANITOWOC, WIS.

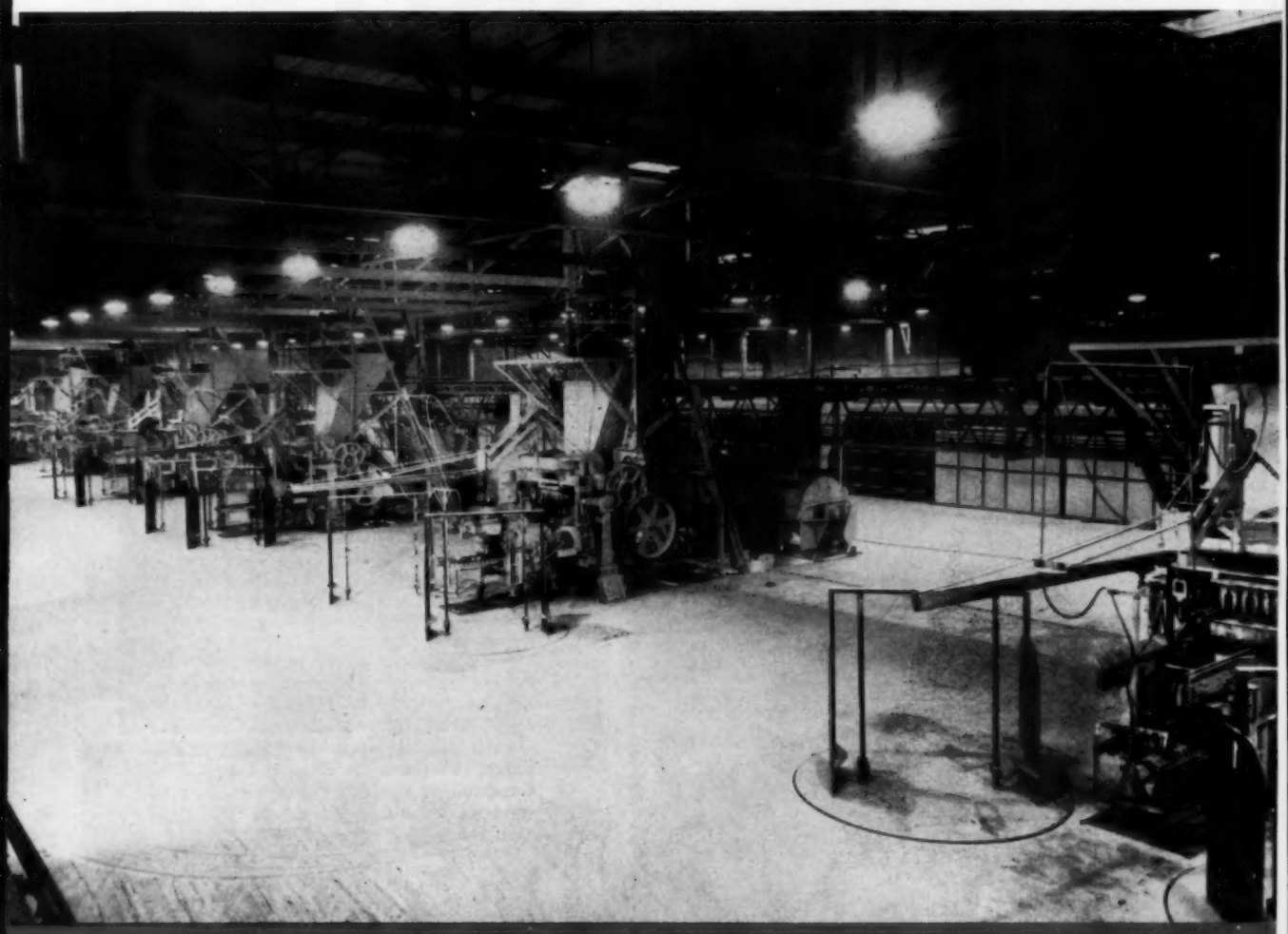
MANITOWOC
SHOVELS 1-5½ YD. Speedcrane CRANES 20-100 TON

For the manufacturers of
Ready-Mixed Concrete
Prestressed Concrete
Precast Products
Concrete Blocks
Concrete Pipe

FEBRUARY 1957

THE CONCRETE MANUFACTURER

A SPECIAL SECTION OF PIT AND QUARRY



One of the largest Concrete Block Plants in the World—Canada Concrete Products, Inc., Montreal, Canada. [See page 205.]

DOW

BETTER CONCRETE FASTER WITH DOWFLAKE

When Dowflake is added, workability of concrete is improved, normal strength achieved faster, freezing hazard minimized.

Dowflake® (Dow calcium chloride, 77-80%) gives you stronger, better quality concrete every time, all year around. This ever-thirsty chemical assures you of stronger concrete at all ages—for example, a week after pouring it is nearly one-third stronger than plain concrete. Forms, equipment and men go on to other jobs sooner. And Dowflake makes concrete more workable. It flows faster. Needs less water. Uniformity of curing, uniformity of strength and many other advantages are yours with Dowflake.

You benefit from faster setting time. Plain concrete, without Dowflake, poured at 40°F. requires an average of 6¾ days to reach safe working strength. This same concrete *with* Dowflake needs only 2¾ days—a savings of four full days! At 32°F. Dowflake saves you 5¾ days—at 25°F. it's actually 35 days!

Save man-hours, save money, increase efficiency—and get a stronger, better quality concrete faster with Dowflake. Dowflake can be added at the plant or to the mixed concrete in the truck shortly before discharge. Available in 25-pound and 100-pound moistureproof bags. Write THE DOW CHEMICAL COMPANY, Midland, Michigan, Dept. IN 782R-2.

(TOP) The 25-pound bag is an accurate measuring unit. Add one bag to a five-yard batch to obtain a 1% Dowflake mixture. Two bags for 2%. Mix thoroughly. Easy as that—and no chance for error, no awkward bucket measures.

(CENTER) Concrete flows faster, is more workable and produces a greater strength gain when it contains 1 to 2% Dowflake.

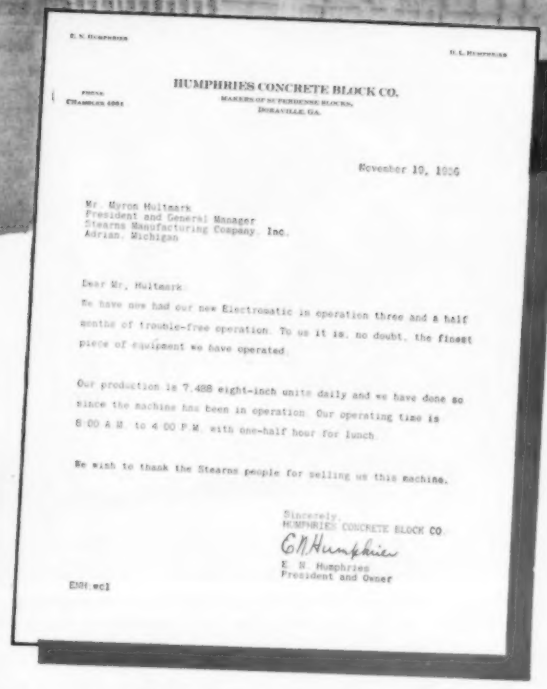
(BOTTOM) Your assurance of better concrete work every time is Dowflake!

YOU CAN DEPEND ON DOW

HUMPHRIES CONCRETE BLOCK CO. AVERAGES

7,488

QUALITY 8" BLOCKS PER 7-1/2 HOUR DAY!



HUMPHRIES CONCRETE BLOCK CO.
MAKERS OF SUPERDENSE BLOCKS
DORAVILLE, GA.

November 10, 1956

Mr. Myron Hultmark
President and General Manager
Stearns Manufacturing Company, Inc.
Adrian, Michigan

Dear Mr. Hultmark:

We have now had our new Electromatic in operation three and a half months of trouble-free operation. To us it is, no doubt, the finest piece of equipment we have operated.

Our production is 7,488 eight-inch units daily and we have done so since the machine has been in operation. Our operating time is 8:00 A.M. to 4:00 P.M. with one-half hour for lunch.

We wish to thank the Stearns people for selling us this machine.

Sincerely,
HUMPHRIES CONCRETE BLOCK CO.
E. N. Humphries
President and Owner

ENH:ecl

...WITH THEIR STEARNS ELECTROMATIC

The Stearns Electromatic in operation at the Humphries Concrete Block Company, Doraville, Ga.

Left to right: Mr. E. N. Humphries, President; Mr. H. L. Humphries, Vice Pres. and General Mgr.; Mr. W. C. Lancaster, Office Mgr.; and Mr. W. L. Christopher, Superintendent.

The statement, "We wish to *thank* Stearns for *selling* us this machine", so aptly put by Mr. E. N. Humphries, reflects the sentiment of *all* Electromatic users today. OVER 1,000 superior quality blocks per hour, day after day—month after month—assures these enthusiastic Electromatic owners THAT EXTRA BLOCKS . . . MEAN EXTRA PROFITS FOR THEM!

They learn, too . . . that the Stearns Electromatic is *exclusively* designed and built for high speed operation . . . faster cycling *without* machine abuse . . . higher productivity *without* sacrifice of quality . . . lower unit costs and increased profits. So how about *you* . . . write today for full particulars, and the installation nearest to you!

BE SURE TO VISIT STEARNS BOOTH
10th CONCRETE INDUSTRIES EXP.
KIEL AUDITORIUM
ST. LOUIS, MO., FEBRUARY 25-28

ASK ANY OWNER!

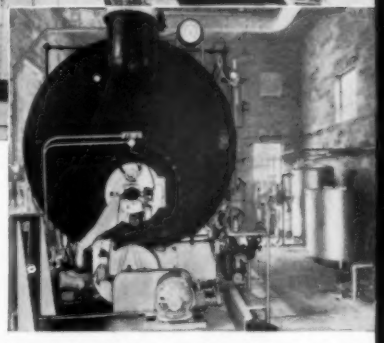
STEARNS

MANUFACTURING COMPANY · INC.

ADRIAN, MICHIGAN, U.S.A.

COMPLETE CONCRETE PRODUCTS PLANT EQUIPMENT

More than 18 months of research and development by Southern Block and Pipe Corp., preceded the development of the modern process.



New 600-hp boiler "speaks with authority," providing entire steam supply for this progressive firm. Starting service and operator instruction are furnished without extra charge — an important *extra* bonus for specifying Cleaver-Brooks boilers.

New "high-pressure" block plant sets new record with Cleaver-Brooks 600-hp boiler

Automatically steam-cures 20,000 blocks and 150 tons of pipe and shapes per day

SOUTHERN Block and Pipe Corp., Norfolk, is to be congratulated on its impressive, record-setting achievement. This newest and most modern block plant in Virginia is a perfect pin-point example of the very latest in applied concrete products technology . . . *and why it pays to buy steam power with a punch!*

Consider what it takes to do all this:

- Steam-cure *five* high-pressure autoclaves of 8 x 8 x 16 in. block per 16 hours — or a total of 12,000 blocks.
- Steam-cure from *four to six* low-pressure (50 psi) kilns of block — each kiln containing 1400 blocks.
- Furnish steam for *six* additional kilns to cure 150 tons of concrete pipes and shapes.

Southern Block's new Cleaver-Brooks 600-hp boiler burns No. 6 fuel oil at an average rate of 1250 to 1500 gals. per 16-hr. day. Boiler operates continuously for 16 hours — at 140 psi at a maximum stack temperature of 400°F.

An outstanding maintenance job is being done by the steam engineer in charge. Daily checks are made on feedwater, oil consumption, water evaporation, and condition of all equipment in the cycle. Records prove that due to efficient operation and care, this plant is maintaining an average fuel-to-steam efficiency of *80% or better*. One more convincing demonstration of the day-in, day-out reliability and economy of Cleaver-Brooks' modern four-pass, forced draft boiler design.

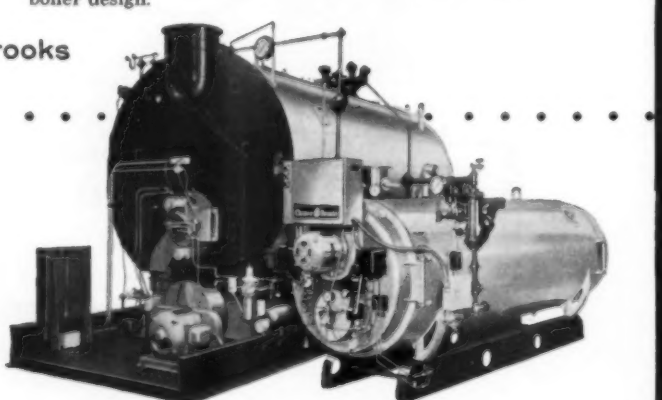
Steam needs...large or small...Cleaver-Brooks has the answer to them all

Cleaver-Brooks offers you a choice of 19 sizes, 130 models for oil/gas or combination oil/gas firing — in the range of 15 to 600 hp. Competent sales agents in principal cities assist you without obligation. For complete data, write:

CLEAVER-BROOKS COMPANY
Dept. B, 347 E. Keefe Ave., Milwaukee 12, Wisconsin, U.S.A.
Cable address: CLEBRO — Milwaukee — all codes.

Cleaver Brooks 25th YEAR

TWENTY-FIVE YEARS OF LEADERSHIP BY THE ORIGINATORS OF THE SELF-CONTAINED BOILER



The CONCRETE MANUFACTURER

February 1957

Be Individual at Your Convention

IN these convention months, hundreds of producers of the many products of concrete, manufacturers of equipment used in these various industries, and others having kindred interests, are getting together, to toss thoughts back and forth and, if possible, to come up with some "cross-fertilization of ideas" for the benefit of all.

This apt term—the basic idea of this editorial—comes from the pen of Wilferd Peterson, of the Jaqua Company, Grand Rapids, Mich., who, in a recent issue of *Printers Ink,* provocatively summed up the subject of individualistic thinking in an article entitled *Groups Don't Create; Individuals Do.* He emphasizes that it is the individual who has learned how to think who will make the best contribution to "group brainstorming," as he puts it.

We have observed and taken part in many industry meetings over the last few years and have about reached the conclusion that in such group thinking we have come close to forgetting the individual. Aside from the few who are given the opportunity to present papers, lead panel discussions, or head small committees, the great majority attend their conventions with the indifferent assumption that merely by being present they can assimilate the information presented by a few individuals.

There is much of value in the article mentioned for all those who attend our conventions. In the course of these meetings we should make genuine progress as a group, in each instance, to inspire and stimulate each other as individuals. The more informative ideas we bring to the meeting, and the more we share these with others there, the more worthwhile will be our contribution. Or, paradoxically, the more we bring to the meeting, the more we will take home with us.

If each man would sit down for an hour, prior to attending his convention gathering, and put down on paper the problems he has encountered; the solutions he has found; his tricks of the trade, accumulated by experience; methods which he feels would help others; data on costs, *ad infinitum,* he would take the initial step toward creative thinking.

If, at every opportunity in the meeting, he would freely offer opinions, questions, or answers when appealed to, or, in talking with his friends, would relate items of help to them, he might indeed spark an idea which has been smothered these many years by the superficial assumption that the only place to find ideas is in a crowd. He might prove the worth of an individual's constructive thinking.

We feel that the pendulum has swung too far in one direction—that there are too few "givers" and too many "takers" in the meetings of today. The larger these meetings grow, the fewer will be the opportunities for the individual to do creative thinking on his own. This year, let's see if the balance between individualism and group brain-storming can be restored.

Roy L. Peck

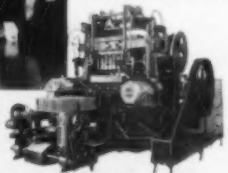
● CONCRETE PRODUCTS MFG. CO.
(l to r) A. K. Atkinson, Jr., Gen. Mgr.; W. Hooker, Plant Supt.; A. D. Brown, Asst. Plant Supt.; W. E. Villhard, Yard Supt. and C. S. Philbrook, Machine Supt. (insert) R. J. McManemin, President. This company started in the block business 23 years ago. Today they operate 4 Vibrapac machines, producing 4,500,000 units (8" or equivalent) annually.

St. Louis is a BESSER city!

90% of all Concrete Block used in the St. Louis area are produced on BESSER VIBRAPACS!

● MAJESTIC BLOCK CO.
Mike Mohan, flanked by his 3 sons, John, Robert and Al. All four have been enthusiastic Vibrapac users for many years. At present they are operating 3 Vibrapacs.

BESSER VIBRAPAC
The choice of leading blockmakers, everywhere. Produces up to 10,000 units (8" or equivalent) daily. Fully automatic.



● VOLZ CONCRETE MATERIALS CO.
One of the oldest producers of concrete block in the St. Louis area. Their first Vibrapac was installed in 1940. Today they operate 4 Vibrapacs. (l to r) Wm. G. Gittins, V.P. & Gen. Mgr.; Ed. R. Gittins, Pres.; and Sam J. Gittins, Sec.-Treas.

BESSER company
Box 131 • Alpena, Michigan, U.S.A.
1st in Concrete Block Machines

See the Vibrapac in Operation • NCMA Convention, St. Louis • Feb. 25-28

News of the Concrete Industries

F. L. Christy Heads Board Of Marietta Concrete— Leonard Christy President

At the annual business meeting of the Marietta Concrete Corporation, Marietta, Ohio, all the members of the company's board of directors were re-elected. In addition, the following officers were elected:

Frank L. Christy, Marietta, (formerly president and general manager) chairman of the board; F. Leonard Christy, Marietta, president; R. Neil Christy, Marietta, executive vice-president and treasurer; C. B. Ross, Baltimore, Md., executive vice-president; J. Darwin Ross, vice-president and general manager of the Baltimore plant; and Charles D. Fogle, Marietta, secretary and legal counsel. In addition, James B. Dunn, Marietta, was named comptroller.

Leonard Christy, the firm's new president, stated that the outlook has never been brighter for the company's diversified line of concrete products and pointed out that the development of production facilities for various precast structural products such as beams, columns, and girders has been expanded.

At present a new plant in Marietta for the production of precast concrete structural members is being completed. A new plant at the Baltimore installation was erected last year for the production of Marietta's precast, insulated wall panels.

In addition to the main office and plant at Marietta, branch plants and offices are also maintained at Baltimore, Jamestown, N. Y., Nashville, Tenn., and Charlotte, N. C., where precast concrete products are manufactured.

Vanderbilt U. Sponsors 3rd Quality Concrete Session

Vanderbilt University, Nashville, Tenn., has announced its third Quality Concrete Conference, to be conducted by the School of Engineering. This meeting is to be held in Frierson Hall, Alumni Memorial Hall, on February 19 and 20. Its purpose is to improve concrete design, workmanship, and construction procedures and so promote the welfare of the concrete industry.

Sessions are open to architects, engineers, contractors, ready-mixed concrete and aggregate producers, finishers, concrete products manufacturers, and others in the construction industry who are interested in the production of quality concrete.

• Earl Christensen, employed by the Ready-Mix Concrete Company, Reno, Nev., for the last 15 years, has been selected Nevada's "Driver of the Year" by the Nevada Motor Transport Association. Mr. Christensen, who drives a ready-mix concrete truck for the firm, has a record of 15 years of accident-free driving totaling nearly 300,000 miles. He is shown with his family (daughter Pamela and Mrs. Christensen), receiving the congratulations of Senator Alan Bible, after having been presented the safe-driving award.

Coming Events

February 11-14, 1957—Los Angeles. 27th annual convention, National Ready Mixed Concrete Association. Statler Hotel.

February 25-28, 1957—St. Louis. 37th annual convention, National Concrete Masonry Association, and 10th biennial show, Concrete Industries Exposition. Kiel Auditorium.

February 25-28, 1957—Dallas. 53rd annual convention, American Concrete Institute, Statler-Hilton Hotel.

March 5-9, 1957—Washington, D.C. 49th annual convention, American Concrete Pipe Association. Shoreham Hotel.

July 29-August 2, 1957—San Francisco. World conference on prestressed concrete. Fairmont Hotel.

August 25-31, 1957—Murray Bay, Canada. Semi-annual directors' meeting, National Ready Mixed Concrete Association. Manoir Richelieu.

Master Builders Company Creates New Positions To Pace Rapid Expansion

Stephan W. Benedict has been elected to the newly-created post of executive vice-president of The Master Builders Company, a Cleveland, Ohio division of the American-Marietta Company.

Mr. Benedict joined Master Builders in 1948 as director of research and has been vice-president of research and engineering since 1955. He was materials engineer for ten years with the National Bureau of Standards in the cement and concreting materials section. He is a member of the American Concrete Institute, the American Society for Testing Materials, the Highway Research Board, and the Cleveland Association of Research Directors.

Other new posts were created in line with the rapid growth of Master Builders.

Herbert K. Cook was appointed to the new position of vice-president for engineering. Mr. Cook, who joined the Master Builders research staff in 1954, had been director of engineering since 1955.

Thomas M. Kelly, formerly director of research, was named vice-president for research, another newly-created position. He has been in the company's research department since 1954.

Virginia Concrete Firm To Build New Prestressed Plant

The Virginia Prestressed Concrete Corporation, Christiansburg, Va., producer of prestressed concrete structural shapes, is constructing a plant in the Roanoke area for the manufacture of heavy structural members used in bridge construction.

Officers of the firm are William H. Carder, president; J. E. Shrewsbury and W. A. Oakey, vice-presidents; and R. B. Mountcastle, secretary-treasurer.

Dr. William Otto Radichel, 73, president of the North Star Concrete Company of Mankato, Minn., died recently of a heart attack. President of the firm since 1922, Dr. Radichel was active in the business until his death. The company was organized by Dr. Radichel's father in 1901.

• George W. (Katter-Blox) Katterjohn, concrete masonry producer of Paducah, Ky., in his new BMW Iseta, which he has named "Katter-Bug." This 3½-hp., single-cylinder, air-cooled midget weighs 770 lb., goes 60 miles to the gallon, and has a top speed of 50 m.p.h. The Katterbug was shipped from Munich, Bavaria, traveling by boat to New Orleans and by truck to Paducah. "Katter-Blox" proposes to emblazon the firm's signs and slogans on it.

Capacity of New R.M.C. Plant Rated at 200 Cu. Yd. per Hr.

An open house introduced the new $250,000 plant of the Waterbury Ready Mixed Concrete Company, Waterbury, Conn., to 500 spectators. The modern facility, said to be the largest ready-mixed concrete plant in New England, has a storage capacity of 2,000 tons of aggregate and cement.

By the use of electronic controls, the plant can produce 200 cu. yd. of ready-mixed concrete per hour. Speedy output is facilitated by the big Smith Tilter. Eighteen trucks equipped with two-way radios comprise the fast, efficient ready-mix fleet.

Officers of the plant are J. Francis Smith, president; Alfred S. Barbara, vice-president; Mary D. Fried, secretary; and John N. Carley, controller and treasurer.

Spectra-Glaze Producers Hold Baltimore Sales Meeting

Producers of Spectra-Glaze, a lightweight, load-bearing concrete block with a glazed face, attended a sales meeting on November 26 and 27, 1956, in Baltimore, Md. Manufacturers licensed by Burns & Russell, holders of the patent on this method of facing blocks, were present from all sections of the country and Canada.

The program included speakers from various associations and companies connected with the industry. H. Samuel Kruse, A.I.A., keynoted the program with an address entitled, *Selling the Architect*. L. W. Morrison, Tomkins Brothers, Jamaica, N. Y., presented his views on manufacturer-dealer co-operation in his talk, *A Masonry Dealer Looks at Spectra-Glaze*. New products announced by Burns & Russell include a flooring material (Spectra-Flor) and precast window sills (Spectra-Cast).

It was announced that production of glazed units in 1956 amounted to over 4,000,000, representing an increase of more than 200 percent over the previous year's figures. It reflects the increased use of glazed concrete block, especially in walls requiring smooth dirt-resistant colored block.

R. B. White Returns to Staff Of Concrete Building Units Co.

Ralph B. White has rejoined the sales staff of the Concrete Building Units Company, Kansas City, Mo. He will specialize in the promotion of prestressed and precast concrete products.

In the building materials field in Missouri since 1936, Mr. White was with Concrete Building Units from 1949 to 1953. He was also associated with the United Brick & Tile Company and the Lusco Brick & Stone Company.

Harry V. Anderson, 57, a director and former vice-president and general manager of the Middle States Concrete Company, Ashland, Ky., died recently after suffering a heart attack. Mr. Anderson had been associated with the firm since 1940, and retired from active duties about three years ago because of ill health.

Bill Thompson, owner of Thompson's Concrete Products Company, Brainerd, Minn., was elected to the board of directors of the Minnesota Concrete Products Association at the group's annual meeting held recently in Minneapolis.

International Conference On Prestressed Concrete To Be Held in San Francisco

An international conference on prestressed concrete will be presented in San Francisco from July 29 through August 2 by the University of California for some 600 engineers, scientists, architects, contractors and manufacturers from many countries.

The one-week conference is to be sponsored by the university in cooperation with the Prestressed Concrete Institute, the International Federation de la Precontrainte, the American Concrete Institute, the American Society of Civil Engineers, and other technical societies. The Prestressed Concrete Institute will hold its third annual meeting concurrently with the conference.

Papers on precast prestressed members, prestressed thin shells and slabs, research, design, and construction in various countries will make up the program. Panel discussions will be conducted on basic principles, materials, techniques, production, inspection, design, and specifications. Field trips to construction jobs and visits to prestressing plants are scheduled for one day.

Commercial exhibits of machinery, equipment, tools, prestressing wires, anchorages, and related materials will be displayed.

The practical application of prestressed concrete was pioneered in Europe during World War II, and there developed into an engineering science. American engineers now have worked out techniques of their own, and the material is now being manufactured on a mass production basis throughout the United States. It is believed that there are now more than 200 plants manufacturing prestressed concrete piles, beams, bridge girders, roof floor sections, and other products.

T. Y. Lin, professor of civil engineering at the University of California, is chairman of the general arrangements committee for the world conference. Others on the staff are Professor J. W. Kelly, Professor Alexander C. Scordelis, and Kenneth L. Downes Jr., all of the University of California; Ben C. Gerwick Jr. and Robert Singer of Ben C. Gerwick, Inc., San Francisco; and Harold A. Price and Jack Streblow of Basalt Rock Co., Napa, Calif.

Daniel V. Hough, 78, former owner of Straub Building Units, Inc., which later became the Bowen Building Block & Supply Company, died recently in Binghamton, N. Y.

Spectra-Glaze®

SPECTACLE!

See All the Latest Developments
Booth No. 74*...N.C.M.A. Convention

Don't miss it! The SPECTRA-GLAZE® Booth will be packed with NEW ideas, NEW products, NEW equipment and systems! You'll see sample installations of our products! You'll hear about all our technical and sales assistance! So make your trip to St. Louis really worth while—visit Booth No. 74!—February 25th-28th.

NEW! Decorative Colors for SPECTRA-GLAZE®

NEW! SPECTRA-FLOR®

NEW! SPECTRA-CAST® Window Sills

NEW! Equipment and Systems

* We had to double our space to show it all—See us at Booths No. 146-147

Glazed concrete masonry units will have a tremendous market in the booming construction of schools and military projects, and in the institutional and industrial expansion.

® Reg. U. S. Pat. Off., Canada, Other Foreign Countries by THE BURNS & RUSSELL CO. Licensors of the Famous SPECTRA-GLAZE® Process.

THE BURNS & RUSSELL CO.

- Licensors of Process
- Owners of SPECTRA-GLAZE® trade-mark
- Producers of SPECTRA-GLAZE® Compounds

Bayard and Severn Streets **Baltimore 30, Maryland**

● In the construction of the Massachusetts Turnpike, more than 1,000,000 solid 6- by 8- by 16-in. concrete blocks were applied to the drop inlets and slope pavings below bridges. The use of concrete masonry is said to have cut the cost by approximately 25 percent. Camosse Bros., Auburn, Mass., was the supplier.

Potlatch Yards Acquires Control of Graystone, Inc.

Acquisition of the control of Graystone, Inc., by Potlatch Yards, Inc., both of Seattle, Wash., was announced recently by John H. Hauberg Jr., head of the latter firm, and F. M. Kettenring, Graystone president.

It was indicated that the transaction involved a transfer of certain common-stock interests, and that it has not caused any change in the corporate structure of Graystone. Management organization and policies of Graystone will also remain as under the former setup.

Operation of the Graystone industries began in 1919, and products now include concrete pipe, concrete block, ready-mixed concrete and related building materials. Plants are located in Seattle, Aberdeen, Bellevue, Centralia, Chehalis, Everett, Olympia, and Shelton—all in Washington.

Potlatch Yards, in business since 1905, has its headquarters in Seattle, and operates branches in 45 locations in Washington and Idaho.

Russia Launches Program For Concrete Construction

According to reports from the U.S.S.R., the Soviets are trying to catch up with Western construction industries by initiating a big program involving the use of prefabricated reinforced concrete. This material is to be utilized in building industrial plants and homes.

The target is said to be 33,000,000 cu. yd. by 1960, 8,300,000 of which are to be in prestressed reinforced concrete prefabs. Some members will weigh 30 to 50 tons.

Seven cities in Ohio contracted in 1956 for more than 100 miles of concrete streets, according to the Portland Cement Association.

The High Speed GRIFFIN Portable Cement Loader

WORKS AT ANY ANGLE
UP TO 300 BBLS./HR.
11' TO 100' IN LENGTH

from bulk cement car

10-DAY DELIVERY

Write for Details

to truck

CEMENT Z-Z-Z-Z-Z-OOMS!...in the "ZOOTER"

"ZOOTER" is the modern, simple, economical way to *speed-load* trucks, bins, mixers and batchers from bulk cement cars.

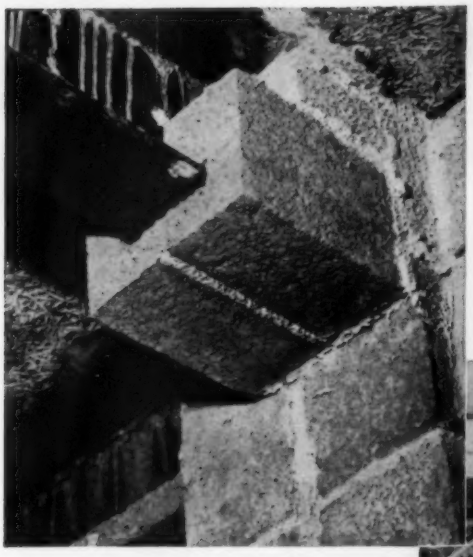
Proved in scores of installations. Operates just as smoothly and easily in vertical position. Cuts loading time and labor costs to minimum.

View at right shows 11 foot unit with wheel-mounted, welded steel tubing frame, adjustable for height, and all accessories for feeding vertically to 21 feet. Price $1259.00, F.O.B. Honeoye, N.Y.

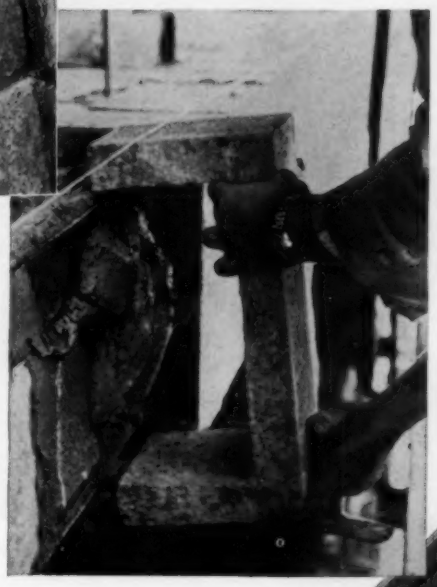
Also available in standard 11' to 30' lengths—over 30' multiple sections used.

Prices subject to change without notice.

LARRY GRIFFIN CORP., 3001 James St., Syracuse, N. Y., Phone: 73-1514



CONCRETE UNITS
inside and out



UPPER: Solid slotted blocks fulfill insulation requirements and become part of the finished wall surface.

CENTER: Special U-Shaped Blocks cover exterior spandrel beams.

LOWER: Entire exterior masonry surface is painted concrete units.

■

Concrete units manufactured by: The Cincrete Corporation, Long Island City, New York.

■ There is no limit to new and unusual uses of concrete units in modern construction. An example is the revolutionary design of the Alfred Levitt 40-building apartment project in Queens, N. Y., where concrete units are both decorative and structural elements . . . inside and out.

Imaginative uses of concrete units like this pay off in easier, more profitable sales for concrete products manufacturers. Look around your own vicinity. Chances are there's a new use for your products, waiting to be fitted into your profit picture.

And remember, for the most profitable production include Lehigh Cements in your plans. There is a Lehigh Cement to help you produce quality units with any manufacturing process.

- LEHIGH EARLY STRENGTH CEMENT
- LEHIGH PORTLAND CEMENT
- LEHIGH MORTAR CEMENT
- LEHIGH AIR-ENTRAINING CEMENT

LEHIGH PORTLAND CEMENT COMPANY
Allentown, Pa.

For your concrete forming needs...

EFCO "LIFETIME" STEEL FORMS

available on a PURCHASE BASIS

Increase profits, reduce costs — with EFCO "Lifetime" Steel Forms. They save time, material, money. Adaptable to wide use. Available in many types of regular and special sizes.

WRITE FOR CATALOG on EFCO "Lifetime" Steel Forms. And ask for details on Special Economy Steel Forms and the Economy Steel Form System on a rental basis.

Economy Forms Corp.
DES MOINES, IOWA

Offices in St. Louis, Mo.; Kansas City, Mo.; Lincoln, Nebr.; Minneapolis, Minn.; Ft. Wayne, Ind.; Milwaukee, Wis.; Chicago, Ill.; Cincinnati, Ohio; Cleveland, Ohio; Metuchen, N. J.; Rochester N. Y.; Springfield, Mass.; New York, N. Y.; Washington, D. C.; Decatur, Ga.; Charlotte, N. C.; Dallas Texas; Tulsa, Okla.; Houston, Texas; Los Angeles, Cal.; Oakland, Cal.; Denver Colo.

NEW GOVERNMENT RELEASE!
UNUSED
CAB-OVER-ENGINE
GMC 6x6 ARMY TRUCKS

- Unused and Guaranteed!
- Factory-New Performance!
- Two Cost Less Than One!
- Delivered on Approval!

TWO of our Unused and Guaranteed 6x6 Cab-Over-Engine GMC's cost LESS than ONE new truck . . . give GUARANTEED NEW PERFORMANCE!

Special cab-over-engine design with extra frame length means increased load capacity, BIG SAVINGS TO YOU!

Tandem axle with front wheel drive available with 17′ all-steel bed, wooden side boards. DELIVERED ON APPROVAL!

For specifications, prices, delivery. Write, wire or phone collect JAckson 5-7841
MILTON Y. TOOMBS, JR.,
Sales Manager

MEMPHIS EQUIPMENT Company
CONSTRUCTION AND AUTOMOTIVE EQUIPMENT AND PARTS
766 S. THIRD ST. MEMPHIS 2, TENN.

Chicago Concrete Contractors Nominate Myers for President

The nomination of Henry Myers as president of the Concrete Contractors Association of Chicago was announced recently at the group's annual convention in Mexico City. The nomination is tantamount to the election, which will take place during the first week in April.

Henry Myers

The main purpose of the meeting was to form a national concrete contractors' organization to promote the use of concrete throughout the United States.

Mr. Myers, who is a partner in Charles S. Myers and Sons, a concrete construction company, succeeds Bert Carey, president of Bert Carey and Company, who held the post for 5 years. Mr. Myers was formerly secretary-treasurer of the association.

Henry Steigerwaldt, executive president of the Steigerwaldt Cement Construction Company was renominated vice-president of the association, and Edward McCarthy, partner in Joseph McCarthy and Sons, was nominated secretary-treasurer, succeeding Mr. Myers.

Members of the association nominated to the board of directors are: Art Regan, Regan Brothers, Inc.; William De Graf, De Graf Brothers; Joseph Slonim, Capital Cement Co.; Phillip Accomando, Michael Accomando Inc.; and Henry Altergott, Altergott and Altergott.

American-Marietta Co. Reports Biggest Sales, Profits in 1956

All previous records for sales and earnings were exceeded by American-Marietta Company during the year ended November 30, 1956.

Net income of $16,204,548 was 45.9 percent above the $11,109,703 reported for the 1955 fiscal year. 1956 was the second consecutive year in which profits increased by more than $5,000,000.

After preferred share dividend requirements, earnings per common share were equal to $3.59, exclusive of restricted Class B common shares. Earnings for the 1955 year were $2.91, reflecting adjustment for the 5 for 4 stock split of last July.

Net sales of American-Marietta Company and subsidiaries, including companies acquired during 1956, amounted to $202,310,815, an increase of 22.4 percent above the prior year's sales of $165,339,971.

Commenting on American-Marietta's progress, Grover M. Hermann, chairman of the board, stated, "Larger shipments of cement, chemical products, concrete pipe, and concrete bridge deck sections, resulting from our expansion program, accounted for a substantial part of the increase in sales and earnings during 1956. With 1957 promising a new high in the construction industry, further expansion of our manufacturing facilities should bring additional increases."

American-Marietta's cement capacity will be increased substantially when the plant being built near Birmingham, Ala., goes into production in early summer.

Other expansion plans for 1957 include the building of two new concrete products plants in New York. Concrete pipe will be made for sewer and highway drainage.

Plants in Illinois, Pennsylvania, Ohio, Kentucky, West Virginia, Michigan, New Mexico, and California are being expanded so that American-Marietta's prestressed concrete bridge decks can be produced at more locations.

American-Marietta concrete bridge decks, made in lengths up to 90 ft., are in demand for highway bridges. Their use effectively speeds up bridge building, for while piers are being poured at the bridge site, the concrete decking is being made at the nearest American-Marietta plant. When the piers are ready, decking spans are trucked to the bridge site for quick placement.

Keep YEARS AHEAD TOMORROW

WITH ANY

WE'RE LOOKING FORWARD TO SEEING YOU

In Booth "D"
NCMA SHOW
Feb. 25-28
Kiel Aud., St. Louis

GOCORP "SUPER" TRUSTEE

Hydraulic GOCORP "TRUSTEE"

NO DRAWING BOARD DREAM BUT THOROUGHLY FIELD TESTED—THE BIG, HEAVY DUTY, 3 at a time, PLAIN PALLET, "SUPER" TRUSTEE IS READY TO GO TO WORK FOR YOU NOW!

CONSIDER THESE FACTS!!!

- **HIGHER PRODUCTION**—Up to 1100 good blocks per hour, *with many aggregates, without abusing the machine.*
- **TOP QUALITY BLOCKS**—Fewer culls in production • Fewer rejects on the job • Variable cycle—for complete flexibility and constant control of quality • Accurate height control.
- **LOWER MAINTENANCE**—Hydraulic operation means fewer wearing parts • Smoother operation • The elimination of cams, cam followers and gears means big maintenance savings for you.
- **QUICK MOLD CHANGE**—Change full height molds in about 20 minutes—to other heights in about 30.
- **RUGGED CONSTRUCTION**—Heavy duty frame with heavy plate cross bracing — Heavy duty bearings — 5" dia. cross shafts • The "Trustee" is built to last.
- **NO BRAKE FAILURE**—"Trustee" vibrator motors are 10 HP plug reversing type • Designed for frequent stops and starts • No brakes to cause trouble.

Both the "SUPER" TRUSTEE and the new economy model, TRUSTEE "SPECIAL" (also a 3 at a time), will accommodate, without alteration, molds of the majority of plain pallet machines now in use. You can have all the advantages of the modern hydraulic TRUSTEES and protect your mold investment too!

AND THAT'S NOT ALL - *Ask about these other fast selling hydraulic TRUSTEE models:*

TRUSTEE "SPECIAL" ..... 3 at a time economy model
TRUSTEE 2½X ..... up to two 10 x 8 x 16" units per cycle and other combinations
TRUSTEE 2X ..... up to two 8 x 8 x 16" units per cycle and other combinations

IT COSTS LESS TO OWN A GOCORP . . . .
. . . . BECAUSE VALUE IS A GOCORP PRODUCT

GO CORP
ADRIAN-MICH.
454 Grace Street Adrian, Michigan

Canadian Block Concern's Expansion Includes Installation of Autoclaves

A RECENT announcement of the Argo Block Company, Ltd., Cooksville, Ontario, Canada, tells of the coming installation of three 114-in. diameter by 90-ft. autoclaves as a part of a five-year expansion program which will completely modernize the company's facilities. It will also allow a much greater exercise of quality control over all phases of production. It is expected that the new production will be available by September of this year. The cylinders are being fabricated by Toronto Iron Works, Ltd., Toronto.

To supply the steam required by the autoclaves, a new steam-generating plant has also been installed. Designed and supplied by Babcock-Wilcox and Goldie-McCulloch, Ltd., of Toronto and Galt, it will bring the plant steam production capacity to 23,000 lb. per hour. Controls for the generating unit and individual controls on each of the three autoclaves were designed and supplied by the Bailey Meter Company, Ltd., Toronto.

Special semi-contour U-shaped racks, designed by St. John, Platt & Carlson, Buffalo, N. Y., engineers, are the first of this type to be used in Canada. The large diameter of the autoclave and the use of the special racks permit storage of the maximum number of blocks per linear foot. The autoclaves will be operated for two 12-hour cycles per day, and initial daily production will be about 18,000 standard 8-in. equivalents.

The use of Haydite (expanded-shale aggregate) in the blocks is a "first" for Argo in eastern Canada. It is expected that these blocks will have a high degree of volume stability, uniformity of color and greater strength than conventionally cured units. High-pressure-steam curing accelerates the normal process of hardening, and the lime and silica in the block form a hydrated calcium silicate, the lime being hydrolized from the cement. It has been determined that such crystalline forms do not swell and shrink as much as the amorphous form created by curing at normal temperatures.

Another items of equipment being installed in the Cooksville plant includes a dust collector system on the mixer floor of the plant, which is expected to improve the working conditions there considerably. A semi-automatic electrical batching system—first of its kind in Canada—insures close quality control at that stage in the block-making.

The company's aggregate-handling system, which supplies the materials for several different types of concrete products, has been redesigned. Nine permanent reinforced concrete block storage bins will hold 50,000 cu. yd. of aggregate in heated storage. The company will also increase the overhead bin capacity by 50 percent, the new equipment affording storage of 12 different gradings of aggregates.

Materials are transferred to overhead bins through a conveyor system which operates in a 500-ft. underground tunnel. Batching is then accomplished by gravity feed, with electrical recording instruments keeping a constant watch on quality control during the batching and curing procedures. All aggregates coming into the stockpiles are laboratory-tested, and permanent records and graphs are made of each shipment. A Fuller-Kinyon compressed-air, bulk-handling cement system is to be installed, furnished by the Construction Equipment Company, Ltd., Toronto.

R. H. Grimm, Jr., is vice-president and general manager of the company, and Glenn E. Grimm is vice-president in charge of production for Argo's subsidiary companies. John J. Baughan, engineer, is project manager of the new installations.

● This steel form for a tetrapod, an integrally-cast "four-footed" concrete member with a central core, is ready for shipment. It consists of two sections. The strange object is being successfully used for the protection of breakwater construction in various parts of the world. Forms for mass production of the giant "jacks" are fabricated by the Blaw-Knox Company.

1957 Revised Registry Issued For Industrial Radio Systems

The 1957 official *Registry of Industrial Radio Systems,* revised annually from FCC records at Washington, D.C., is now available.

Part I lists all systems in the low-power industrial, special industrial, forest products, power utility, petroleum and gas, relay press, motion picture, and VHF maritime services, showing the name and address of each licensee; the location of each fixed transmitter; call letters; the number of mobile units authorized; operating frequencies; and the manufacturer of equipment used.

Part II, added this year for the first time, lists the licensees according to the transmitting frequency employed. This has been done at the request of the communication engineers and frequency co-ordinating committees.

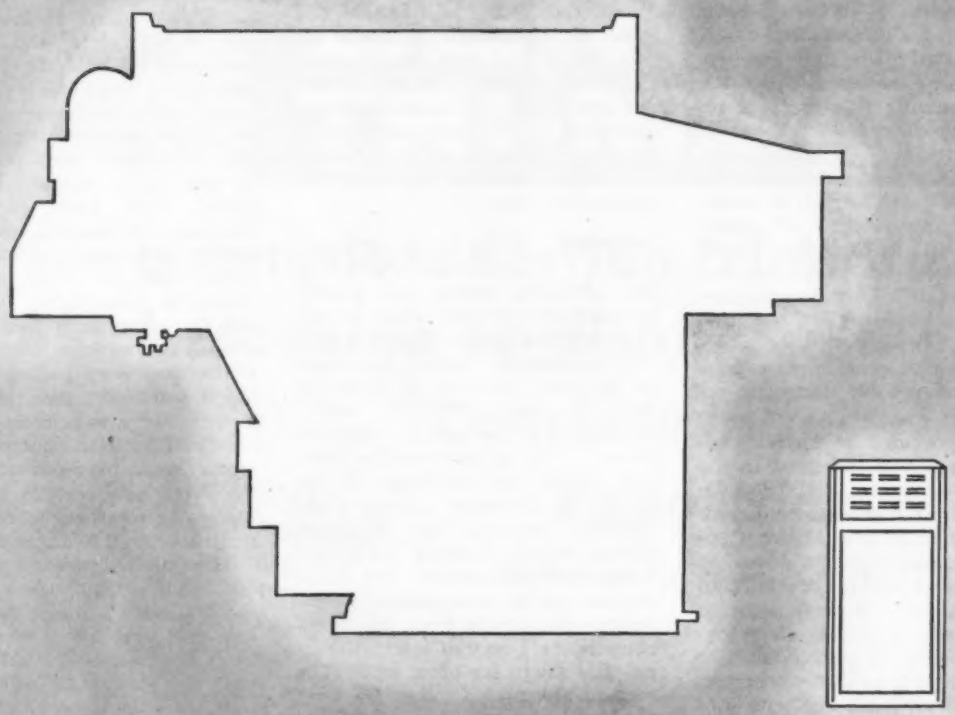
The new edition contains 153 pages, nearly twice as many as the previous edition. The *Registries* have become a standard reference in radio communication, since the FCC does not put out any equivalent publication. Price, $5 per copy.

Other *Registries,* devoted to transportation, public safety, and common carrier systems, are published annually in March, June, and September, respectively by the Communication Engineering Book Company, Monterey, Mass.

On April 12 and 13 the Texas Aggregates Association and the Texas Ready Mixed Concrete Association will hold their third annual joint convention at Galveston. Sessions will be held in the Hotel Galvez, according to a recent announcement made by Ray L. Cain, executive secretary of the two associations.

Let us fill you in on the details...

at the National Concrete Masonry Show



Profit-making news for the concrete masonry manufacturer — direct from BUTLER BIN! New highs in automation and production . . . new lows in operating costs brought to you by the leader in automation.

BE SURE TO SOLVE THE MYSTERY . . .
Visit us at Booths 75 — 76 — 77
Kiel Auditorium • St. Louis, Missouri

BUTLER BIN CO.

987 BLACKSTONE AVENUE WAUKESHA, WISCONSIN

Rx Ready Mix

By HARRY F. THOMSON
Consulting Engineer, St. Louis, Mo.

Sampling and Testing Require Attention

THE problem of concrete tests is like taxes—it's always with us. So we are justified in discussing at intervals the requirements and pit-falls of proper testing procedures. Even though a producer does not handle his own testing — relatively few ready-mix companies feel justified in doing so—it is well for him to understand the requirements of proper testing, so that he can judge intelligently whether tests of his concrete, made either at his order or his customer's, correctly reflect the true quality, or whether improper procedures may have contributed to misleading and possibly damaging results.

The importance of correct handling of tests was indicated in the following statement by Stanton Walker, director of engineering for the National Ready Mixed Concrete Association during a discussion of testing at a recent convention of the association: "I don't want to imply in any way that all ready-mixed concrete is perfect concrete and that there is no faulty concrete; but I will say with full emphasis that a very, very high proportion of our troubles in meeting strength specifications comes not from the concrete, but from the way in which the strength tests are made."

In view of the growing trend toward selling ready-mix on the basis of a guaranteed strength, this statement by Mr. Walker carries important implications, namely that much of the strength testing of concrete is not handled in strict conformance with accepted standard procedures, and that the results frequently indicate a lower quality than is actually the case. Unfortunately, almost any departure from standard procedures, even to a minor degree, causes the indicated strength of a specimen to be lower than would be shown under correct procedures. This adverse criticism, in many instances, applies to the testing by reputable commercial testing laboratories. Because of this fact it behooves all members of ready-mix organizations to be well informed regarding correct procedures, and to be observant regarding any incorrect procedure in handling specimens, from the taking of samples through reporting on compression tests.

Sampling Care in the preparation and handling of test specimens begins with proper sampling, as material which is not representative cannot furnish significant information. Correct procedure in sampling concrete is given in A.S.T.M. Des. C172-54*, which specifies that the sample shall be taken at three or more regular intervals during the discharge of the batch, by repeatedly passing a receptacle through the discharge stream, or by diverting the entire stream into a container. The latter method can be accomplished by directing the stream from the truck chute into a buggy at intervals during the discharge of a load. The method also provides that the sample is to be transported to the place where the test specimens are to be molded. This provision can be met by wheeling the buggy to a location where cylinders can be molded and stored until they are taken to the laboratory for curing. This place should be free from vibrations caused by trains, traffic, pile drivers, etc.

It will be noted that the following procedure, used by some inspectors, is incorrect: catching the sample in a bucket at a single point during the discharge, dumping the concrete nearby, and proceeding to fill molds at a location where the cylinders cannot stand for 24 hours. Such a method cannot be expected to result in true results as to strength. It is such careless handling, even if done by an experienced man, which a ready-mix organization should guard against.

Molding of Cylinders The molds for making compression test cylinders are required by A.S.T.M. Des. C31-55 to be "cylindrical in form, made of non-absorbent material, and substantial enough to hold their form during molding." They should not vary from the standard diameter by more than 1/16-in. nor from the standard length by more than ¼-in. "The molds should have an attached bottom or base plate, and should be watertight. Molds made of parafined paperboard are widely used; but these should be examined carefully before acceptance as there have been bad experiences with poor molds. A well-known operator, Fred F. Bartel, Tews Lime and Cement Company, Milwaukee, recently described such an occurrence—"The molds, made of strong paperboard, elongated considerably on absorption of water from fresh concrete within, or from the damp sand in which they were packed after cylinders were cast. Also, the interior surfaces were sufficiently rough to bond well to fresh concrete." Paper molds should have sufficient wax on the inside and outside surfaces so that some wax can be removed by scratching with a finger nail.

The standard procedure for molding cylinders provides that they shall be filled in three equal layers, and that each layer be rodded 25 times with a ⅝-inch, bullet-pointed rod, the strokes to be distributed over the cross-section and penetrate into but not through the underlying layer. After the top has been struck off, it should be covered with a glass or metal plate to prevent evaporation. It is permitted to tap the side of the mold if voids are left by the rodding, as may occur with stiff concrete. But it should be noted that rodding with a stray piece of lumber or by a piece of deformed reinforcing rod, is strictly "non-reg." Filling the mold by holding it in the discharge flow from the mixer chute, as is sometimes attempted, is also incorrect.

Test for Quality There are two separate objectives in making cylinders for strength tests. The usual reason is to check on the quality of the concrete delivered, as measured by the strength developed at given ages

* Copies of the "C" standards mentioned in this article can be obtained from the American Society for Testing Materials, Race St., Philadelphia 3, Pa.

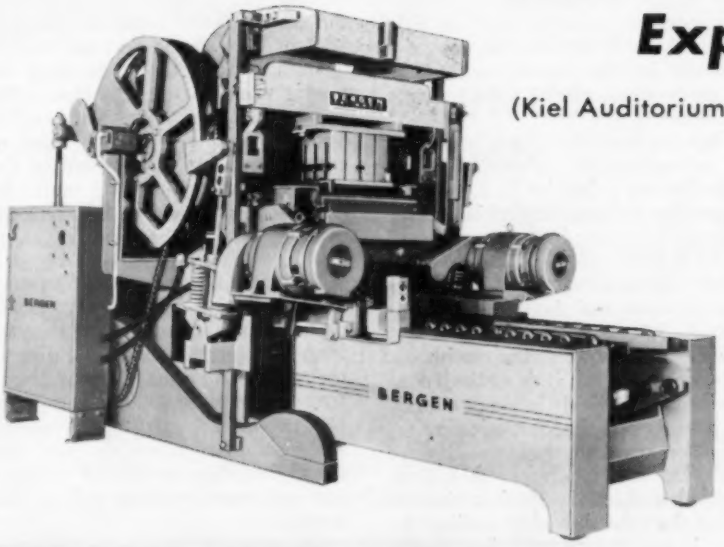
MEET THE DEMAND

for TOP QUALITY + VOLUME PRODUCTION

with BERGEN TRI-MATIC

See a complete Bergen Tri-Matic Block Machine on display at the Concrete Industries Exposition.

(Kiel Auditorium, St. Louis, Mo., Feb. 25-28)



•

You'll see why more block plants are selecting BERGEN equipment.

•

BERGEN
MACHINE & TOOL CO., INC.

NUTLEY, NEW JERSEY

Cable Address: "BERGENCO" (Nutley, N. J.)

such as 7, 14, or 28 days. These cylinders should be handled strictly in accordance with the provisions of A.S.T.M. Des. C 31-55 as to temperature and moist curing.

The second reason for making test cylinders is to check on the development of the strength of the concrete in the structure, to determine when centering can be safely removed. These cylinders are kept at the job and exposed to the same temperature and weather conditions as the concrete in place. Then the cylinders may be broken at ages to be named by the construction people. The observed strength may be interpreted as indicating the strength developed in the structural numbers. But these strengths should *not* be considered as a verification of the quality of the concrete which may have been specified. They are only "job cylinders." However, this assumption as to strength in the structure may not be realistic because the concrete in large members will probably develop strength faster than the cylinders.

It should be noted that a standard test of ready-mix as specified in A.S.T.M. Des. C94-55T comprises the crushing of three cylinders, not one or two; the strength determined by the test is the average of the three crushing strengths. Sometimes three cylinders are made, one to be broken at 7 days and two at 28 days; neither of these results is a standard test under the recognized specifications for ready-mixed concrete.

Protection During First 24 Hours All cylinders should have special care during the first 24 hours after casting. It is particularly important not to disturb the specimens during this period, as even with careful handling they are apt to be damaged. For that reason it was suggested above that the sample of concrete from which cylinders are to be cast should be transferred to a safe place, where the cylinders can be molded and stored overnight without being moved.

A.S.T.M. Des. C 31-55 suggests that during the first 24 hours the cylinders should be kept in a storage box so constructed that the temperature will remain between 65 and 75 deg. F. A heating element with thermostatic control may be necessary in cold weather. Other suitable means to maintain this temperature condition are acceptable. But exposing the cylinders to either very cold or hot weather, or placing them alongside a heating unit in a construction office, must be avoided, as the normal development of strength might be affected.

Curing Specimens After 24 hours the objective for which the cylinders were made determines the handling. Cylinders intended for checking the design for strength of the concrete or as the basis for acceptance should be transferred to the testing laboratory, removed from the molds, and stored in a moist condition at a temperature between 65 and 75 deg. F. until the time for the test. Most commercial laboratories provide the moist condition, *i.e.*, free water maintained on the surface of specimens, by storing in a "fog room" in which the temperature is regulated close to 73 deg. F. For smaller operations, as for instance at a plant which handles its own testing, reasonably satisfactory curing can be obtained by storing the stripped cylinders in damp sand or under wet burlap in a room kept at normal temperature.

An important point to be observed is that the cylinders must be transferred to laboratory curing conditions after 24 hours, *i.e.*, the day after the casting. If the specimens are not placed under such curing conditions promptly after 24 hours, the resulting strength tests cannot be considered standard. This condition is not always easy to obtain. For instance, cylinders cast on Friday night wait till Monday, the next business day, for transfer to the laboratory, unless special arrangements are made.

But too frequently those in charge of a commercial laboratory leave cylinders on a job for 2, 3, or even more days before transferring them, because it has not been "convenient" to pick them up. Such an unjustifiable occurrence is substantially mal-practice, and should not be condoned. When a laboratory undertakes to test in accordance with accepted standards, it is obligated to perform accordingly in every respect. It is suggested that in reviewing reports on strength tests, the date of arrival at the laboratory should always be checked. If that date is other than the day after casting, the test is not "standard," but unofficially may be informative, if the history of the cylinders can be evaluated.

An extensive investigation of the effect of curing conditions on the compressive strength of concrete test specimens was reported by D. L. Bloem in N.R.M.C.A. Publication No. 53, December, 1954. These tests showed that curing without moisture resulted in loss of strength at various ages as follows: 10 percent in 2 days, 15 percent in 4 days, and 25 percent or more in 28 days. The same test indicated a serious loss of strength at warm temperatures; thus at 100 deg. F., strength was reduced 25 percent at 4 days and up to 40 percent at 28 days. These results confirmed what has been said above as to the necessity of keeping specimens in moist condition and at normal temperature until they are transferred to laboratory conditions, and that they should be so transferred at the age of 24 hours.

We referred above to cylinders made for the purpose of determining the time when a structure can be put into service. These cylinders should be removed from the molds after 24 hours, and thereafter they should experience the same weather exposure as the portion of the structure which they represent. They should be sent to the laboratory not earlier than seven days before the time of test. While they are at the laboratory, they should be kept at normal temperature, but from 24 to 48 hours before testing they should be immersed in water.

Capping of Cylinders The ends of compression test cylinders must be plane within 0.002 in. Either end which does not meet this requirement must be capped, and the caps should be plane within 0.002 in. Also, the ends must be approximately at right angles to the axis of the specimen. Capping is done by applying a thin layer of capping material to the end of the cylinder; the material must be stronger under compression than the cylinder itself. The practice as to capping material varies considerably; A.S.T.M. Des. C 31-55 recognizes stiff, neat portland cement paste, to be applied shortly after the fresh concrete has ceased settling in the mold. Alumina cement, high-strength gypsum plastic, and certain proprietary mixtures of sulphur and granular materials are also used. Ordinary plaster of paris is not permitted because of its low strength.

Incidentally, specimens removed from the fog room should be covered with damp burlap until placed in the compression machine, as they should be tested while moist.

Compression Test As provided in A.S.T.M. Des. C 39-49, the testing machine should be equipped with two bearing blocks with hardened faces

3 REASONS WHY...

block unloading is no longer a problem for BES-BLOC, INC. of Jacksonville, Florida

3 SIDE-O-MATIC UNLOADERS now handle the job . . . . .

Bes-Bloc, Inc. report that their Side-O-Matic Unloaders are not only doing an excellent job but have helped them get new business by giving better customer satisfaction . . . and at the same time reduced their delivery costs.

YOUR block unloading problems are solved when you are listed among our customers.

SIDE-O-MATIC Unloaders "pay off" in all 'round performance . . . smooth, rapid operation, continuous serviceability under all working conditions, and low-cost maintenance.

Visit our booth at the N.C.M.A. Convention in St. Louis

Pat. Nos. 2,772,794 and 2,772,795

SIDE-O-MATIC UNLOADER CORP.

P. O. BOX 1561 Phone York 7357 YORK, PA.

PARTIAL LIST OF SATISFIED USERS

Alico Concrete Products Co., Inc.
Patchogue, L. I., New York—2 units

The Ideal Builders Supply and Fuel Co.
Cleveland, Ohio—2 units

Binkley and Ober, Inc.
East Petersburg, Pa.—2 units

The Michigan Silo Company
Peoria, Illinois—2 units

Joseph M. Ripley, Inc.
Jacksonville, Florida—3 units

Carter's Concrete Block Plant
Monticello, Indiana

M. L. Dague Company
Muncie, Indiana

Pick's Pack-Hauler
Blue Hill, Neb.

The Fairlawn Supply & Coal Company
Akron, Ohio

Concrete Masonry Corporation
Elyria, Ohio—4 units

Fizzano Brothers, Inc.
Crum Lynne, Pennsylvania

Maule Industries, Inc.
Miami, Florida—2 units

Putnam Mason Supplies, Inc.
Carmel, New York

Peoria Concrete Construction Company
Peoria, Illinois

Nitterhouse Concrete Products
Chambersburg, Pennsylvania

Bestone Incorporated
Chardon, Ohio

The Plasticrete Corporation
New Haven, Connecticut—2 units

The Cleveland Builders Supply Co.
Cleveland, Ohio—3 units

Columbia Concrete Products Co.
Des Moines, Iowa

Park Avenue Cement Block Co., Inc.
Cranston, Rhode Island

Adolf Jandris and Sons, Inc.
Gardner, Massachusetts

Daggett's Concrete Products
South Haven, Michigan

Polyock Brothers
Zenda, Wisconsin

Atlas Concrete Products, Inc.
Flint, Michigan—2 units

David Concrete Products Company
Jacksonville, Florida—2 units

Carl Krebs
Fort Thomas, Kentucky

New Castle Duntile Company
New Castle, Pennsylvania

Foster Builders Supply Company
Port Huron, Michigan

Lima Cement Products Company
Lima, Ohio

Gore Block and Supply
Greenock, Pennsylvania

which must be plane within 0.001 in. The upper block should have a spherically-seated bearing, with a diameter not greatly exceeding the diameter of the cylinder, which can be rotated freely and tilted through a small angle in any direction. It is important that one of the ends of the specimen is at right angles to the axis. If one of the ends tilts slightly, it must be placed next to the spherical bearing block, to avoid eccentric loading.

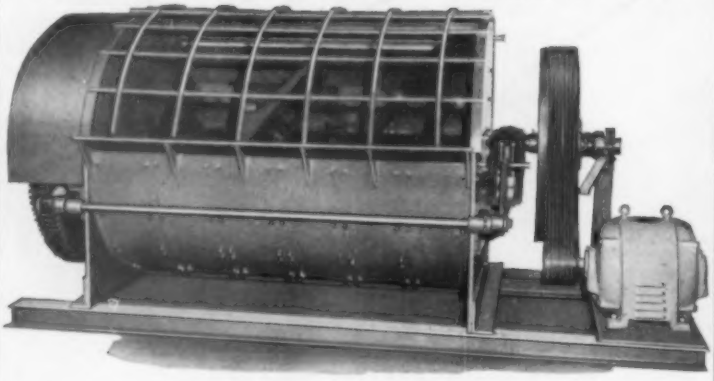
The compression should be applied continuously and without shock; the rate of loading should be applied at a constant rate within the range of 20 to 50 p.s.i. per second. The calibrated pressure dial of the machine should be equipped with two pointers, one to indicate the compression being applied to the cylinder before and after failure, and the other to indicate the maximum load attained.

The compressive strength of the specimen should be recorded in pounds per sq. in. indicated as p.s.i., as calculated by dividing the maximum pounds of compression by the average sectional area. As was noted above, a standard test of a sample of ready-mix is the average strength of three cylinders cast from that sample for each age specified. The report of a test should include a description of any fracture which is other than the usual cone.

Early in this article we quoted an experienced operator in the ready-mix field as stating that much of the trouble in meeting strength specifications comes from the way in which the strength tests are made. It therefore appears in order to suggest that a careful scrutiny of all testing procedures be made in cases of reports indicating strengths significantly lower than could reasonably be expected for the quantities of materials used in the batch. This is one of the possible causes which justify investigation. The results may forestall undue criticism of the concrete involved.

12 Cubic Foot to 75 Cubic Foot

KENT BATCH MIXERS



This large capacity mixer combines features that assure safe, convenient operation and large output of thoroughly mixed concrete *economically.*

Gearing is precision cut. Motor, positive action clutch, belts and bearings are specially designed for heavy duty. Motor and bearings are sealed to exclude dust and grit.

Mixing blades are a superior quality of cast steel. Liners are of sectional type cast from NI-HARD metal, in the larger size mixers. They will render exceptionally long service and may then be replaced easily.

Write for information regarding the complete Kent line of Batch Mixers or Kent Continuous Mixers if interested in this type.

See
KENT MACHINERY IN OPERATION
Right In Your Own Office

Just Ask Our Representative to Bring His Movie Projector

The **KENT MACHINE CO.**

DIVISION OF THE LAMSON & SESSIONS CO.

CUYAHOGA FALLS, OHIO

CONCRETE PRODUCTS MACHINERY SINCE 1925

Canadian Distributor: Wettlaufer Equipment, Ltd., 49 Merton St., Toronto 12, Ontario

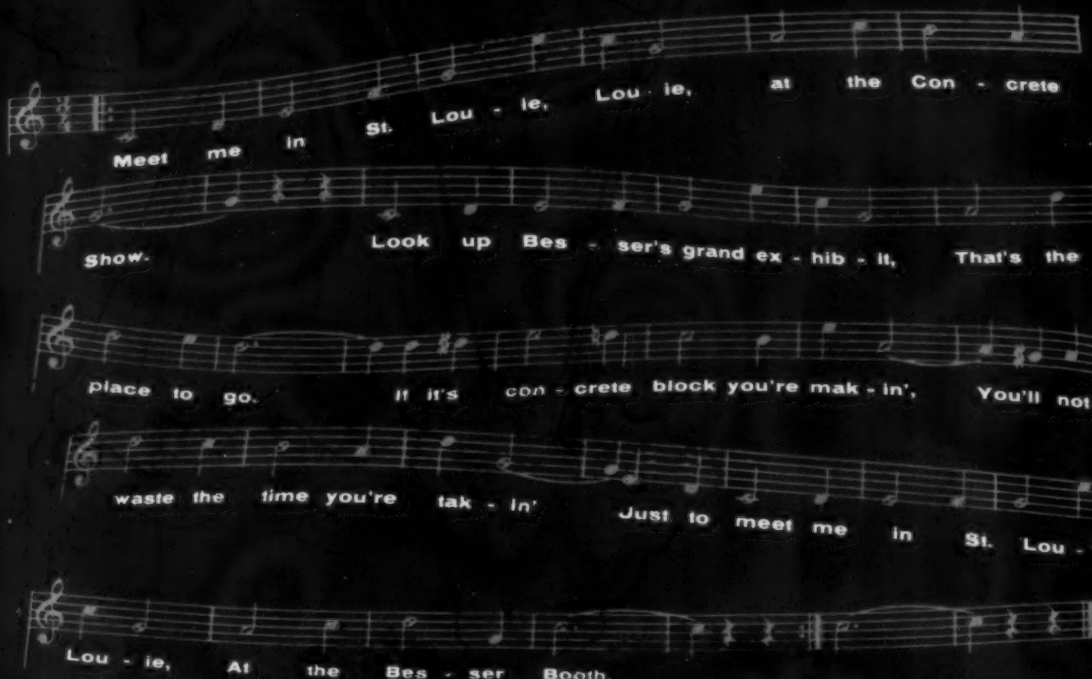
Corrosion of Curing Racks Subject of N.C.M.A. Report

The National Concrete Masonry Association recently issued a new report on *Corrosion of Steel Curing Racks,* which contains the more pertinent information from a previous report, *Protective Coverings For Steel Racks,* now discontinued, plus descriptions of various other known methods of preventing or reducing rack corrosion.

Except for the test data on protective coatings, the material for this report is based on field observations and on information acquired from member plants. Types and costs of various protective materials currently in use to prevent corrosion in the block industry include the following: paints, application and maintenance; cement coatings; oil coatings; zinc coatings; filming amines; and oil films. Costs of the various methods are shown, and average labor requirements for cleaning, painting, and maintenance of racks are presented in detail. The subject is of special importance to those block producers who are using high-pressure-steam curing.

At a cost of $160,000, the Central Pre-Mix Concrete Company, Spokane, Wash., is expanding its truck fleet with the purchase of 10 new trucks. Six of the new trucks will be equipped with mixers and four will be sand-and-gravel trucks. These units will bring the company's fleet to 40 mixers and 14 sand-and-gravel trucks.

Meet me in ST. LOUIS

LOUIE

Meet me in St. Lou - ie, Lou - ie, at the Con - crete
show. Look up Bes - ser's grand ex - hib - it, That's the
place to go. If it's con - crete block you're mak - in', You'll not
waste the time you're tak - in' Just to meet me in St. Lou - ie,
Lou - ie, At the Bes - ser Booth.

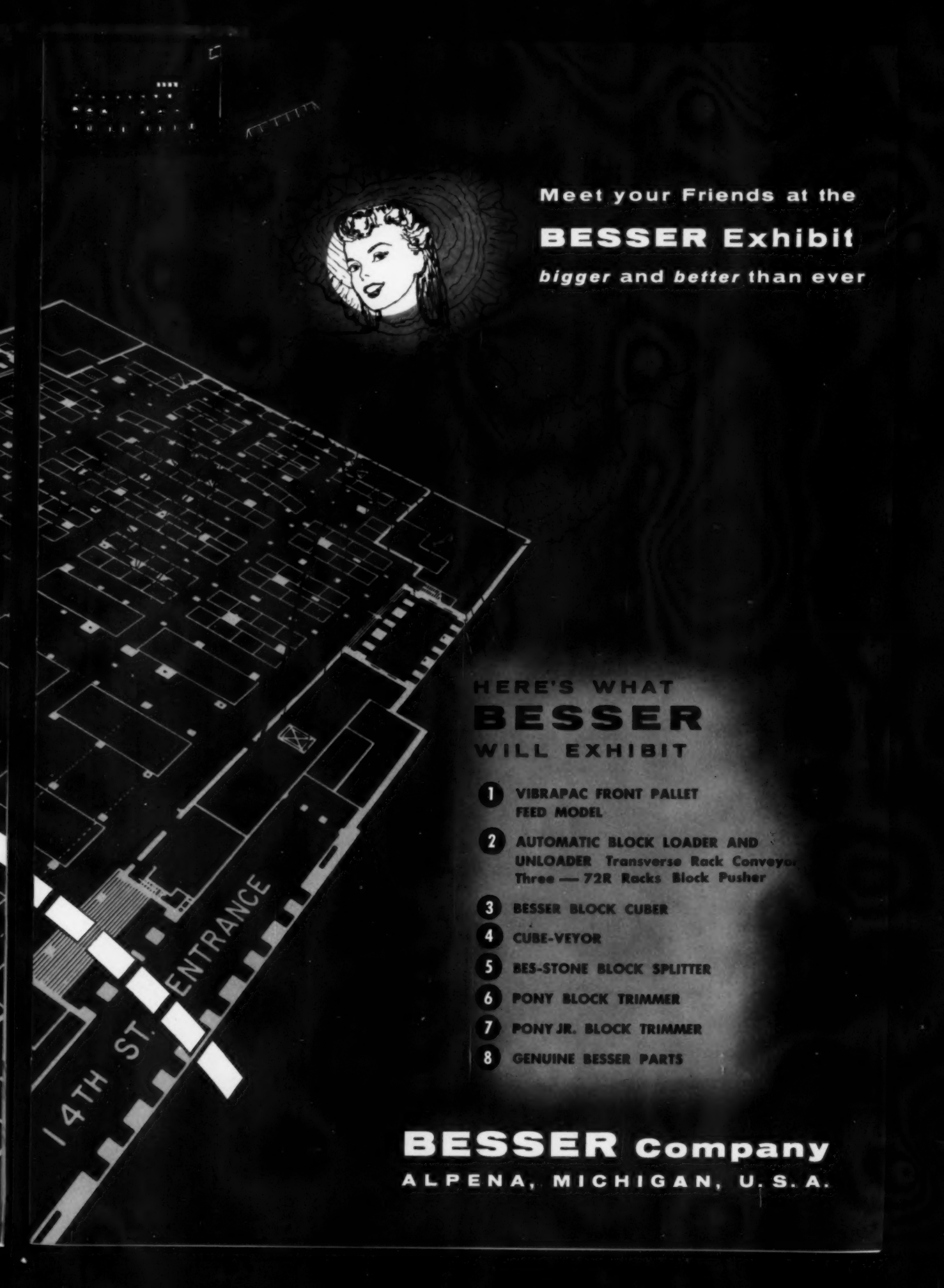
NCMA CONVENTION

and CONCRETE INDUSTRIES EXPOSITION

Kiel Auditorium

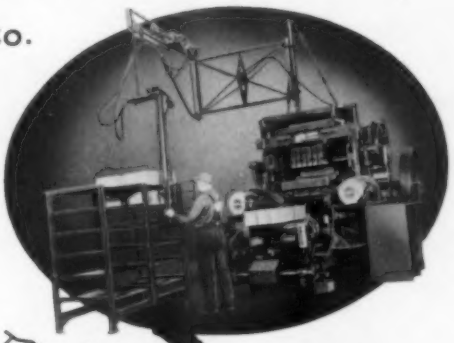
St. Louis

Feb. 25-28, 1957

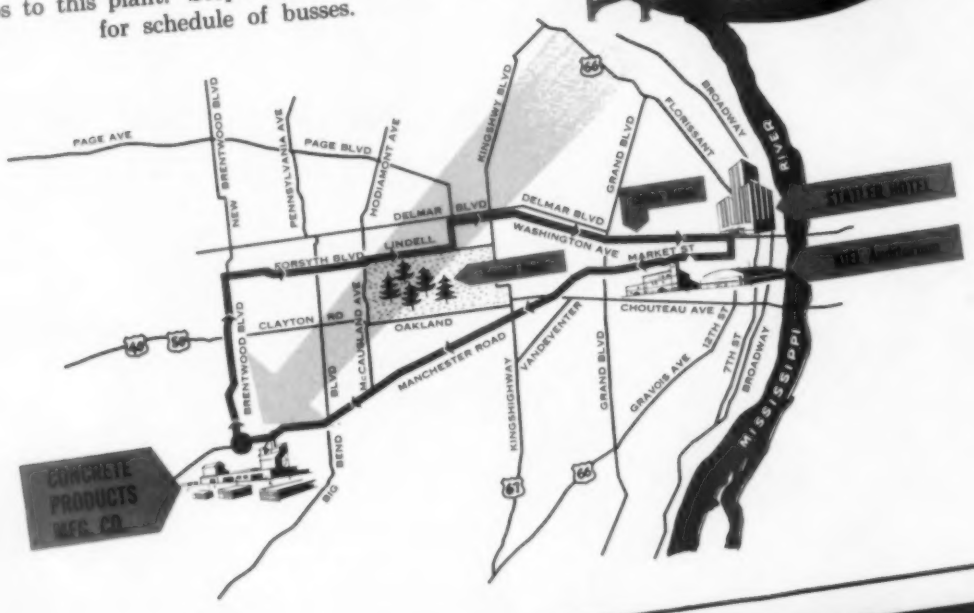

Meet your Friends at the
BESSER Exhibit
bigger and better than ever
HERE'S WHAT
BESSER
WILL EXHIBIT
1 VIBRAPAC FRONT PALLET FEED MODEL
2 AUTOMATIC BLOCK LOADER AND UNLOADER Transverse Rack Conveyor Three — 72R Racks Block Pusher
3 BESSER BLOCK CUBER
4 CUBE-VEYOR
5 BES-STONE BLOCK SPLITTER
6 PONY BLOCK TRIMMER
7 PONY JR. BLOCK TRIMMER
8 GENUINE BESSER PARTS
14TH ST.
ENTRANCE
BESSER Company
ALPENA, MICHIGAN, U.S.A.

See the VIBRAPAC in action

at the Concrete Products Mfg. Co. plant . . . one of the leading block plants in St. Louis. The plant is located at 3025 Brentwood Blvd.



Besser Company has arranged for daily bus trips to this plant. Stop at the Besser Exhibit for schedule of busses.



During the NCMA Convention, you are also invited to visit Besser Headquarters at the Statler Hotel . . . St. Charles Room, Mezzanine Floor.

BESSER Company, ALPENA, MICH., U.S.A.

Pamphlet of N.R.M.C.A. Relates Aims, Services Of National Organization

The 16-page pamphlet recently distributed to the industry by the National Ready Mixed Concrete Association is a good example of effective publicity, designed to give background information on this national group, and to tell why it has commanded the confidence and support of the industry since its organization in 1930.

Included among the listing of its activities and services are the following:

Representation of the industry before Congress, the administrative departments of the Federal Government, and engineering and professional societies and specification-writing bodies;

Engineering research directed toward improvement and use of the product, with laboratory facilities established at the University of Maryland;

Interpretation of legal regulations applying to the industry;

Service or assistance to the industry on taxation problems, labor matters, collective bargaining, cost determination practices and depreciation studies, and periodic reports on these subjects;

Reduction of occupational accidents through annual safety contests and driver manuals;

Annual short courses for industry technicians, and fellowships at the University of Maryland;

A group insurance program for employees of member companies;

Annual surveys of industry production and value, studies of market distribution, and economic studies covering the industry;

Numerous miscellaneous services including contacts and assistance in the development of information on all matters affecting member companies or the industry in general.

The pamphlet also covers the history of the association, its close contact with the National Sand and Gravel Association, the biennial show of machinery and equipment sponsored by both groups, the objectives of the association, officers and directors and their duties, and a history of the progress of the ready-mixed concrete industry.

Some details are presented as to the program for the future, including engineering and research, administrative and business, the work done on interpreting pertinent tax legislation, labor and public relations, personal service, and other activities.

Future demand for ready-mixed concrete is outlined briefly; the association's service to all producers, whether members or non-members, is described; and recent examples of general and engineering association publications are presented.

• Few pictures portray more clearly the details of a ready-mixed concrete plant than this one, which shows the new plant of the Butler Lime & Cement Company at Butler, Wis. This newly formed company is a subsidiary of the Tews Lime & Cement Company, a Milwaukee producer of ready-mix. This plant was designed and built by the Butler Bin Company, Waukesha, Wis.

Both the six-compartment, 392-cu. yd. aggregate bin and the 2,646-bbl. three-compartment cement bin are topped with steel roofs. The cement bin has three 14-in. diameter automatic screws with 8- by 24-in. vane feeders, drives, and electrical controls; it feeds the cement to a 6-cu. yd. cement batcher equipped with automatic fill and air discharge. The aggregate batcher has air-operated filling and discharge gates, and the 200-gal. water batcher is also filled automatically. Capacity of the cement elevator and screw conveyor is 280 to 315 bbl. per hour; the mixer holds 6 cu. yd.

Prestressing Industry Gains Popularity in W. Canada

Canadian sources have stated that prestressed concrete has scored important success in British Columbia. North American Prestressed Concrete, Ltd., Vancouver, B.C., recently submitted prestressed slabs 38 ft. long and 3 ft. wide to tests which required a loading of 6½ tons of sacked cement. The members passed this rigid tests and were officially approved by engineers of the British Columbia Department of Public Works for use in a major construction project.

This firm uses portable prestressing plants which move from one jobsite to the next to turn out the required structural members.

John R. Strandberg Sr., Kansas City, Mo., originator of the North American prestressing system, heads the Vancouver concern and various concrete and construction firms in Kansas and Missouri. Current projects include a deep-sea pier on Burrard Inlet and an armed forces training center on Vancouver Island.

Thomas E. Durkin Named First Executive Secretary Of Wisconsin R.M.C. Assn.

Officials of the Ready Mixed Concrete Association of Wisconsin have announced the addition to their staff of a full-time secretary and the establishing of an office in Milwaukee.

Chosen to serve as the association's first executive secretary is Thomas E. Durkin, Beaver Dam, Wis., who will maintain an office in the First Wisconsin National Bank, sharing space with the Portland Cement Association.

Mr. Durkin was formerly mayor of Beaver Dam. It will be his responsibility to help boost the membership of the association, which now has 70 member companies.

The association recently sponsored a two-day annual short course on concrete at Marquette University.

Our Cover Picture

• This interior view of the Canada Concrete Products, Inc., plant at Montreal, shows the six modern block machines, which require over 150 tons of materials hourly. The building is 260 by 290 ft. in area and is 30 ft. high, with concrete floor throughout. The plant provides a dust-free system for materials preparation which is unique in this type of plant.

Simple Design, Fast Low-Cost Erection Feature Concrete Warehouse Building

ONE of the finest applications of prestressed concrete reported recently is the new 120,000-sq. ft. one-story warehouse of the May Company Department Stores, recently completed at Baltimore, Md. Only four basic structural members, including roof slabs, were required for the entire prestressed structural frame. All of these were cast in steel molds which were continually reused. The entire structure was completed in five weeks, with a work force of only 14 men. The third feature of this building is that the cost of the prestressed structure was considerably lower than any other system considered.

Functional requirements of the building dictated the need for fireproof construction, with wide column spacings to give maximum clear floor areas. This basic need led to the selection of precast, prestressed concrete.

The building consists of 40-ft. by 30-ft. bays, with a clear height of 16 ft. under finished ceilings. Columns were precast in 12- by 12-in. sections having steel base plates welded to the longitudinal reinforcement and cast in the column. Spanning the 40 ft. between these columns are 30-in. deep, modified-I section, prestressed girders. Prestressed reinforcement in each of these girders consisted of 24 ⅜-in. diameter strands placed in four rows of six each in the bottom flange of the girder. An initial stress of 15,000 lb. was applied to each strand.

In order to avoid excessive tension forces in the top of the girder, resulting from the prestressing force, bond was broken in the lower row of six strands for a distance of 8 ft. from each end of the girder. The break was accomplished by means of plastic tubes placed in the forms before concreting, through which the lower row of strands were threaded. The top reinforcement of the girder was mild steel, consisting of two No. 5 bars.

Purlins spanned the girders at 8-ft. centers. These purlins were 18-in.-deep prestressed beams which rested on the bottom flange of each girder to receive the 3¾-in. deep channel slabs forming the roof deck. The ends of the purlins were blocked out to fit into the webs of the girders, as shown on the accompanying photograph. Wall bearing was used throughout the perimeter of the building for both beams and girders.

All connections of beams to girders and girders to columns were welded. Steel plates were cast into these members to provide for the welding. At erection, leveling nuts were placed on the column anchor bolts prior to setting the column. Once set on the bolts, the columns were leveled in much the same manner with a transit and were immediately dry-packed so that the girders and roof could be set. Columns, girders, and beams were set in that order for each bay, so that as the crane worked out of one bay to the next, roof planks were immediately placed in the completed bay.

The entire structural system for the building, except the poured-in-place foundations and masonry pilasters, was precast and prestressed at the Berlin, N. J., plant of the Formigli Corporation, trucked to the building site, and erected by company personnel. Since this job was completed, the company has had several other warehouse jobs in which the same simple basic design has been incorporated.

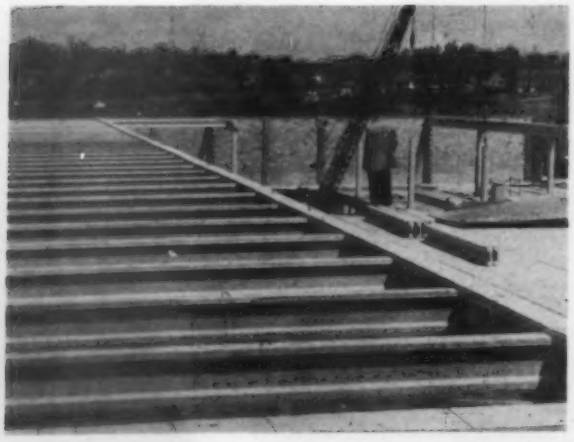
The general contractor on the project was Henry A. Knott, Inc.; the architect was Francis J. Thuman; and the structural design was by Ewell, Nelson, and Bomnart, all of Baltimore.

Bruninga Concrete Products has erected a new ready-mixed concrete plant at Elmwood, Ill. Edward Bruninga is the owner of the plant, and Harold McAlister is local manager.

The Spiekerman Concrete Pipe Company, Stockton, Calif., is constructing a new concrete products plant. Operations have outgrown the facilities at the company's existing plant.

Rhode Island's first concrete products firm, the Quick-Crete Corporation, has constructed a plant in the Mohassuck River Valley. Nicholas Ludovici is the firm's president.

Construction views at the 120,000-sq. ft. May Company Department Stores warehouse in Baltimore, Md., showing the four basic prestressed structural members which constitute the entire frame of the building.



GOFF KIRBY READY MIX COMPANY DISPATCHES TRUCKS BY RADIO, SAVES MONEY ON HAULING

Cleveland, Ohio Firm Operates 70 Trucks From Four Plants—Finds General Electric 2-Way Radio Helps Keep Costs Down!

Goff Kirby is one of Ohio's largest ready mix concrete firms. Its rolling stock is a familiar sight on construction projects throughout the Cleveland area. Last year, Goff Kirby Ready Mix Company was the only outside concrete supplier to deliver ready mix to the Ohio Turnpike project.

32 Trucks Have G-E Radio!

Nearly half the company's fleet is G-E radio equipped. These drivers are in constant contact with each of the four GK plants. Dispatch orders, changes, and special instructions by radio help make sure that loads get to a job on schedule. When breakdowns occur, the GK repair vehicle is on the scene in record time.

Radio Helps Keep Hauling Costs Down!

Edwin Harper, Goff Kirby president, reports that most of the cost of concrete is in the hauling charges. Typical rental of a concrete truck in his city is $11.50 per hour. By eliminating truck waiting time and driver overtime you save money. General Electric 2-way radio helps keep these costs down.

2-WAY MOBILE RADIO

Radio Can Help Your Operation, Too!

Goff Kirby is a typical example of progressive management in the concrete business. Your G-E Communications Counselor can tell you of others, show you how G-E Progress Line Radio can save you money. Call him in, or, write: *General Electric Company, Communication Equipment, Section C1327, Electronics Park, Syracuse, New York.*

Progress Is Our Most Important Product

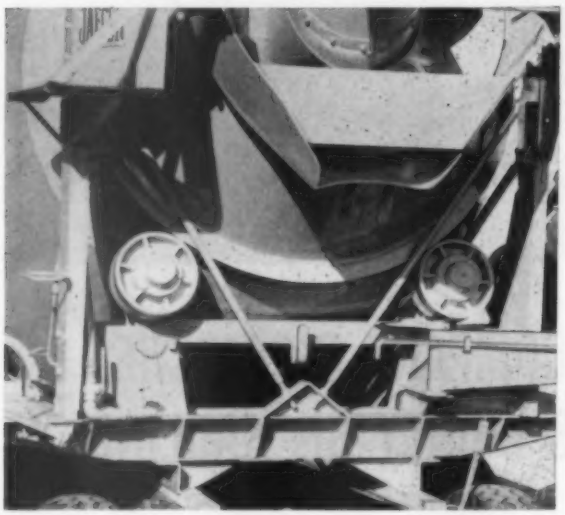
GENERAL ELECTRIC

Jaeger's 1957 model "F"

...everything you've wanted in a truck mixer

What improvement would you most like to have in your next truck mixer? Lighter weight? Faster, easier operation? More flexibility? Simplified maintenance? A more efficient source or application of power?

The new Model "F" gives you all these features to help you produce more concrete, for less money, in 1957. For complete information and prices write us immediately or call your Jaeger distributor. He knows local conditions and truck mixer operation. His cooperation will be helpful in developing the combination of mixer and truck that will produce *maximum profitable payload for you.*

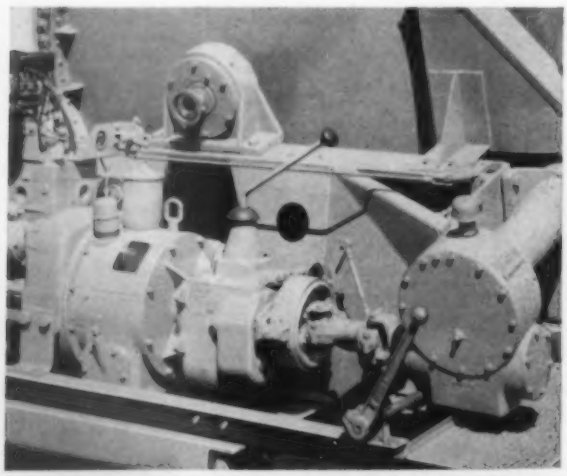


LIGHTER BY HUNDREDS OF POUNDS with stronger, unitized A-frame and clean, open-type rear cradle design. Drum rollers have sealed, grout-proof bearings. All body weight carried within width of truck frame.

THE JAEGER MACHINE COMPANY

602 Dublin Avenue, Columbus 16, Ohio

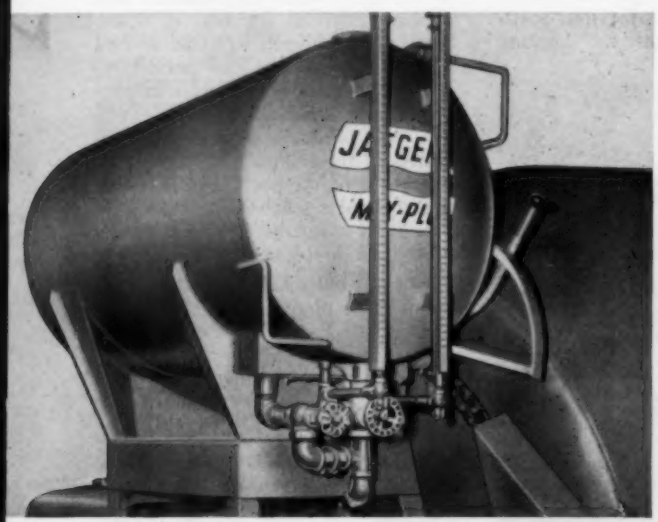
PUMPS • AIR COMPRESSORS • MIXERS • PAVING MACHINES



3 SPEEDS for all operating conditions, from 1½ rpm to 16 rpm, with either hydraulic-reversing or automotive type transmission. **THREE CHOICES OF POWER:** Separate engine, front-of-truck engine p.t.o. or transmission p.t.o.

FASTEST TO CHARGE, DISCHARGE: Big-throat hoppers on open-end or sealed-end loaders, 16 rpm "fast-charge" drum speed, big discharge blades. **FASTEST TO MIX** with 12" spiral blades plus throw-back blades.

Above 6½-7-yard mixer is one of a complete line of "F" model Hi-Dump Units, offered in all standard sizes to meet payload and other operating requirements. Jaeger also builds horizontal-drum truck mixers up to 10 cu. yd. capacity.



REVOLUTIONARY CONTROLLED-GRAVITY-FEED WATER TANK obsoletes syphon tanks, self-priming pumps and special fittings. New pump delivers 60 gpm. Rear-end injection is standard; front-of-drum entry, with grout-proof jet, optional.

NEW EASY-TO-HANDLE CHUTE is light yet deeper for better handling of all mixes, has flip-over 3′ section, and a fixed pivot point for the chute-head hinge with provision for complete swing-away by the quick lift of a tie-rod hook.

Progressive Milwaukee Block Producers

3-plant setup producing 7,500,000 units annually

By BUREN C. HEROD

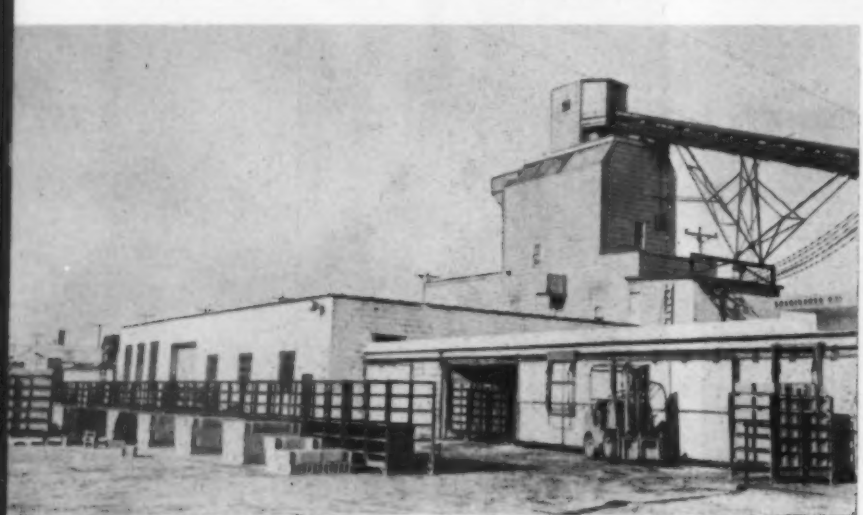
Another ON THE SPOT Report

SLIGHTLY over ten years ago Henry Nagy and his partner, Arthur Hintz, were ready to make practical use of the knowledge they had gained in their two decades of work in all departments of the Jaeger Sand and Gravel Company, Waukesha, Wis. Wisely foreseeing that the aftermath of the war would create a need for housing and industrial buildings—a demand which had been throttled for five years—they chose to enter the concrete block field as the industry most likely to profit from this demand in block-conscious Milwaukee.

Their lack of previous specific experience in this field was bolstered by a valuable general knowledge of material handling and construction, plus a fine acquaintance with the mason contractors of the area, and of an appreciation of their needs in concrete block. Bravely confident of their own abilities, they bought the business of a small block producer in West Allis, on the west edge of Milwaukee. So successful have they been in the intervening years that today they own and operate three block plants with a total production of 7,500,000 units annually, plus a sizable prestressed concrete venture which should fit in ideally to supply the increasing demands for this type of structural concrete in Wisconsin.

Immediately after acquiring the first of the three properties, later known as the West Allis Concrete Products Company, the partners embarked on extensive trips throughout the United States, inspecting the representative block-producing plants in all sections, and taking note of the most modern equipment and methods used in the best of them. They also managed to make several trips to Europe in the period, to check on the latest progress in prestressing methods. This article will deal only with the block-making facilities of these partners, as the prestressed concrete portion of the business producing Spancrete floor and roof slabs warrants a separate story in a subsequent issue of this magazine.

Certain basic equipment is found in all three plants. Most of the bins and weigh batchers were designed by the Butler Bin Company, Waukesha, Wis. Stearns mixers and block machines—the latter including the newest Stearns "Electromatic" —



The plant of West Allis Concrete Products Company, West Allis, Wis., showing the cubing line, the outside ends of the curing kilns, and the material storage bin and conveyor.

have been used in all plants since the first day of operation. Heavyweight units are made in each of the three plants, and lightweight block at West Allis. (Plans are now being made to add such production at the other two plants.) Steam production units are Cleaver Brooks low-pressure boilers, and this type of curing is followed in all plants. All materials come in bulk railroad cars (West Allis plant) or in bulk truckloads, taken *via* undertrack or truck hoppers and belt conveyors to the storage bins.

West Allis Plant This unit was acquired by the two partners in 1946. The West Allis facility, when taken over, was largely equipped with obsolescent bins, mixers, and block machines, and material was handled in relatively low-production volumes. Its main value to the new proprietors was its location, in the path of the westward boom in Milwaukee housing and industrialization.

The first step in its modernization consisted of the installation of a new 214-cu. yd. capacity Butler Bin for aggregates, a 450-bbl. Butler cement bin, a bucket elevator for cement, and a 24-in. by 225-ft. Barber-Greene belt conveyor to handle the movement of materials. A Stearns Model 15 block machine replaced the tamper, which was in need of repair at the time. This Stearns machine is still in use; proper maintenance has permitted the production of 15,000,000 concrete units in the last ten years.

Heavy aggregates, including sand, gravel, limestone screenings, and torpedo sand, are obtained from the Jaeger Sand and Gravel Company and the Quality Limestone Company, Sussex, Wis. Expanded blast furnace slag for lightweight units is Garylite, supplied by the Gary Slag Corporation, Gary, Ind. Cement is furnished in bulk cars (or trucks) by the Huron Portland Cement Company, from its local silos, or the Manitowoc Portland Cement Company, Manitowoc, Wis. These cement companies also furnish masonry cement, sold to mason contractors by the firm.

A small percentage of lightweight units are made with cinder aggregates, obtained from a local commercial source. These units are the only cinder concrete blocks still produced in the Milwaukee area, according to Mr. Nagy. To avoid delay in making such units at any time, and to permit aging of the cinders, a stockpile of 200-300 cu. yd. of graded cinders is kept in the yard at all times. Similar stockpiles of the other aggregates, in larger quantities, are also maintained. The property, 5 acres in area, affords ample space for such stockpiling.

An under-track hopper receives all rail bulk shipments, and a similar 10- by 10-ft. truck hopper is used for truckloads of aggregates. Cement, received either in bulk carloads or truckloads, is taken by cross conveyor to the boot of the cement bucket elevator and conveyed to the cement storage bin. By means of an arrangement of outlet belts, aggregates can be stored in the plant bins or in outside storage, as desired.

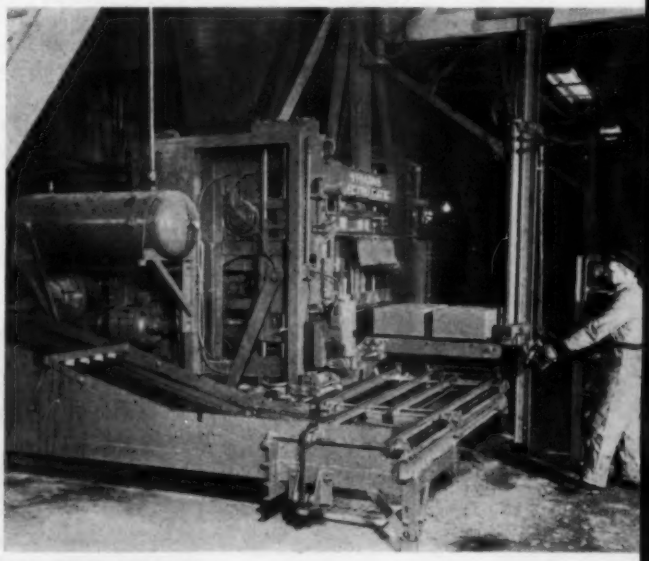
A shortage of cement slowed up production at the Nagy facilities to some extent last year. To keep up with the demand for blocks, the company had to order 49 carloads of out-of-area cement from as far as Buffalo, N. Y.

A typical mix for a batch of heavyweight block consists of 3,100 lb. of sand, 1,200 lb. of gravel, and 4½ sacks of cement. This mix produces 25 units per sack of cement and 119 units per cu. yd. of aggregates. These will test from 790 to 820 p.s.i. gross section as they emerge from the curing rooms, or at the end of 24 hours. Stockpiled as they are, this strength will exceed 1,000 p.s.i. before delivery to the job.

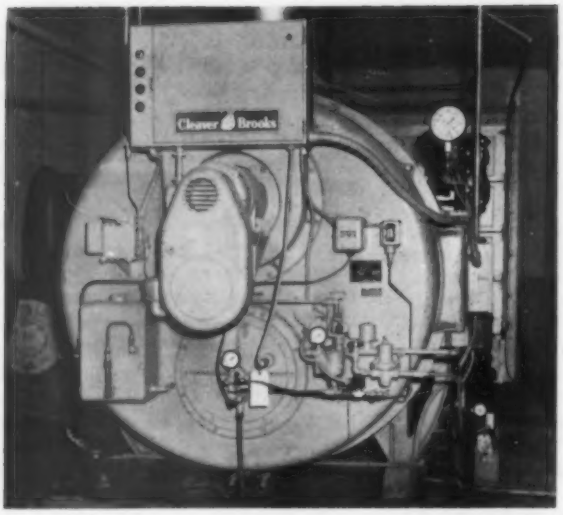
Mixing equipment at this plant consists of two Stearns mixers and one Besser, each of 50-cu. ft. capacity. All mixers are fitted with tight aluminum covers to prevent the escape of cement dust; and a Sly dust collection system was installed, with intakes located at several points on the mixing floor. All aggregates and cement are weighed and batched in a 50-cu. ft. Butler traveling weighbatcher. All mixers are supplied with Darden moisture meters to insure a uniform volume of water in each batch, regardless of the moisture contained in the sand.

Block machines at the West Allis plant consist of two Stearns Model 15 units and one new Stearns Electromatic, the latter just recently installed. The new machine has a very high rate of production—six cycles of 3 blocks each per minute. This rate is reduced somewhat to permit the machine operator to handle the block continuously in taking them from the machine with an overhead off-bearer, placing the pallets on the rack, and removing the empty pal-

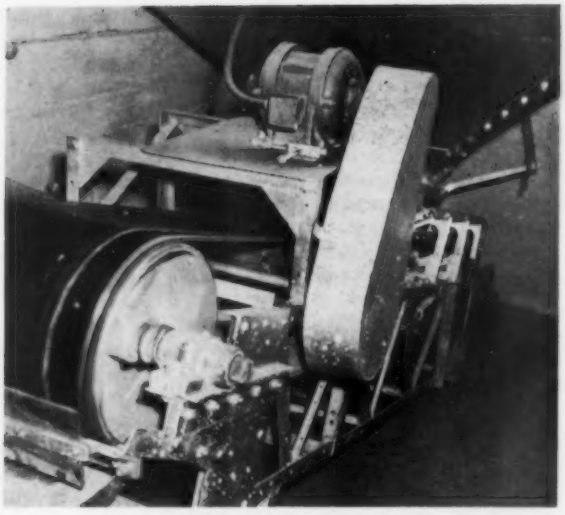
The two partners, Arthur Hintz (left) and Henry Nagy, outside their office at the West Allis plant.



This view of the block machine shows the automatic pallet return (foreground) which cleans and oils the pallets.



Steam production low-pressure, 125-hp. boiler units are used in two plants for curing.



The loading end of the belt conveyor under the storage bins which takes material up to the plant bins.

lets with a magnetic pickup to the cleaning position, each two cycles. The machine is equipped with the latest Stearns power pallet return, which mechanically cleans and oils the empty pallets enroute to the pallet magazine. The two Stearns Model 15 machines, now being rebuilt after their long periods of use, will provide a good share of the 18,000 to 20,000 units per day which Mr. Nagy expects from this plant.

Standard 72-block racks receiving the output of the machines are handled from the machines to the curing kilns by a battery-powered Automatic Transporter platform truck. This unit also places the racks in position for loading in front of the machines. Two Erickson lift trucks transport the loaded racks from the kilns to the cubing area and the empty racks to the production area.

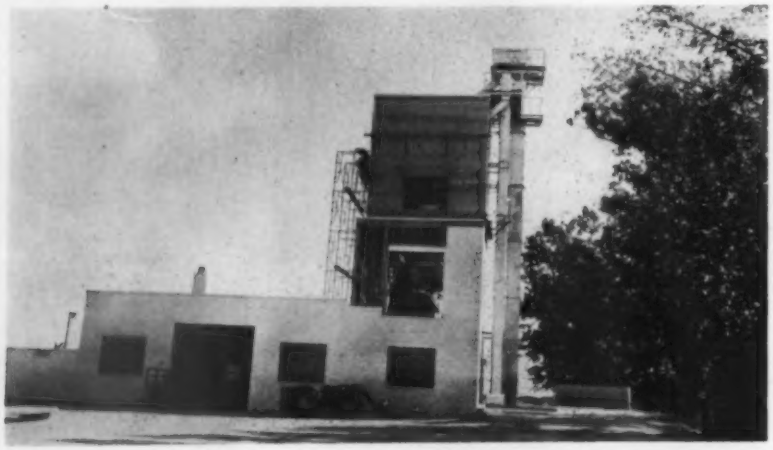
A Cleaver Brooks 125-hp. low-pressure boiler supplies low-pressure steam at 15 p.s.i. for curing blocks at a temperature of 170 deg. F. There is a holding period of two hours after the units are placed in the kilns; then the steam is turned on and the temperature raised and maintained through the night, the kilns being unloaded the next day.

Nine curing kilns are utilized, these being 50 ft. long by 12 ft. wide and 7 ft. high. The kilns, built of concrete block and topped with Spancrete roof slabs and 4 in. of lightweight concrete insulation, have a total capacity of 288 72-block racks, or 20,736 8-in. equivalent units. Doors at both ends of the kilns are fitted with Universal Door Carriers on overhead rails, which can be slid into locking position and sealed with rubber gaskets. A sheet-metal hood with a vertical duct exhausting to the outside atmosphere is installed over each door at the loading end of each kiln, to reduce the accumulation of steam condensation on the kiln ceilings when the doors are opened in cold weather. An exhaust fan quickly pulls the hot steam out of the kiln before an excessive amount of condensation occurs.

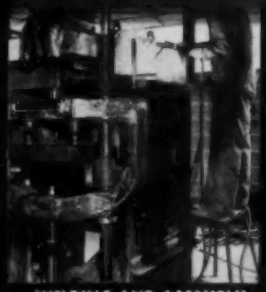
Loaded racks are taken through the discharge end of the kiln by two Erickson platform trucks and carried to the cubing area. Three men are constantly engaged in cubing. The 8-in. blocks are cubed 60 to the cube, the 10-in. and 12-in. sizes, 45 per cube. Units smaller than these are cubed on pallets. Two 4,000-lb. Buda (Allis-Chalmers) fork-lift trucks carry the cubes to storage piles in the yard.

The outside storage yard has 8-in. thick concrete pavement over its entire 4-acre area. There is enough space to store 500,000 units, and this stock quantity is maintained most of the time. It is planned to cover this area in the near future with a Spancrete slab roof, for more efficient winter operation.

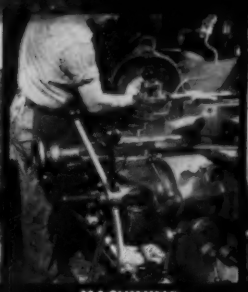
Deliveries of block are made with 20 leased flatbed delivery trucks. A lift truck is brought to the job site and used to build stockpiles of units at convenient locations when the job is of sufficient size to warrant this. A supply of 28- by 34-in. pallets is also furnished the contractor to aid him in handling blocks inside the building, these pallets being picked up at the completion of the work. Mr. Nagy claims that he is the first block producer in Milwaukee to ex-



The Hales Corners plant, showing the 55-ft.-high cement bucket elevator and aggregate storage bins. Materials enter the system in the truck hopper (right).



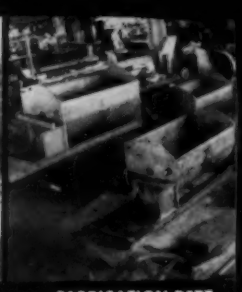
WELDING AND ASSEMBLY



MACHINING

NEW MOLD DEPT.

FINISHING AND TESTING



FABRICATION DEPT.

NEW ELECTRONIC DEPT.

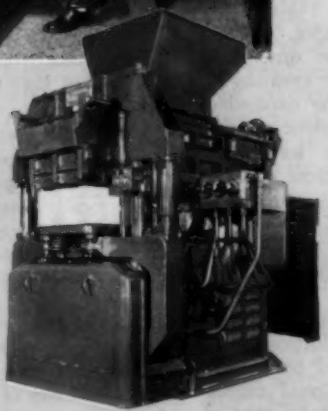
NEW GENERAL OFFICES

NEW ENGINEERING DEPT.

COLUMBIA MACHINE IS EXPANDING WITH THE CONCRETE INDUSTRY

One Of The New Executive Offices

If you are planning an expansion or building a new plant, consult our plant layout and design department. We will have a qualified man at your plant within 24 hours. No obligation! . . . Phone OXford 4-1501, Vancouver, Washington.



As the concrete industry grows, so has Columbia advanced in its manufacturing techniques, engineering developments, and sales and service facilities.

The growth of the industry has paralleled our own expansion. Many developments in the specialty concrete products field have been the direct results of our own experimentation with modern equipment to make drain tile, meter boxes, face block and many others. As a result, many building products which for centuries were made of clay are now made better, faster and at lower cost with concrete aggregates on Columbia machinery.

Columbia is appreciative of this opportunity the concrete industry has given the firm . . . of growth and achievement . . . where enterprise, imagination and knowledge are rewarded through acceptance by the industry of Columbia machines.

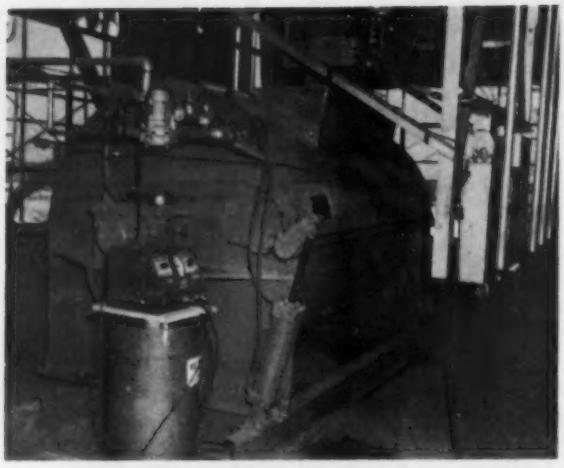
See you at St. Louis at the N. C. M. A. CONVENTION
February 25th thru 28th

Columbia MACHINE

DISTRICT OFFICES IN: Wisconsin, Illinois, S. Carolina, Mississippi, Florida, New Jersey, Virginia, Texas, Massachusetts, Montreal, Quebec, Vancouver, B. C.

Home Office: 107 S. Grand, Vancouver, Wash.
FACTORY BRANCH AND WAREHOUSE: Mattoon, Illinois
PARTS DEPOT AND OFFICES: Burbank, California

Above: A bulk cement truck empties a load into the truck hopper feeding the cement elevator at the Hales Corners plant.



Above, right: The mixer unit with weigh-batcher above it, is equipped with moisture controls which regulate the amount of water going into the mix.

Below: Dan Noonan, manager of the Waukesha operation (left), and Melroy Wehr, manager at the West Allis plant.

This view in the curing room area shows kilns and overhead duct equipment for fast removal of steam at the end of the curing cycle.

tend such service to the contractor. The two partners handle all selling of block from the three plants; no other salesmen are employed. It is the company's claim that it furnished block for three out of every five large concrete masonry jobs in the Milwaukee area. The West Allis plant contributes nearly three-quarters of the company's total production.

Waukesha Plant Chronologically the second of the trio of plants established, the Waukesha Block Company came into being with the purchase of the business of the Krumhaus Block Company, Waukesha, Wis., in 1953. Located on 13 acres of hilly terrain containing sand and gravel, this facility afforded an additional business in bank run materials for fill; it also became the nucleus of the expansion of the company, in accordance with the modernizing plans of Messrs. Nagy and Hintz.

The high bank of materials was cut down by using a 1½-cu. yd. P & H shovel and a 1⅝-cu. yd. Michigan front-end loader. A considerable portion of the unwashed materials was used for creating a 10-acre flat area for the expanded operations of the block plant and for the installation of the long prestressing beds for Spancrete slabs.

The block machine acquired with the Krumhaus plant was operated for a year and a half; then it was replaced with a Stearns Model 15 machine. A thorough remodeling operation was performed on the block plant, and 33 additional 72-block racks were added to the 50 previously used. Additional curing kilns were installed to take care of this increased capacity.

As there is no railroad available for carload shipment of incoming materials, all these must be brought to the plant by truck. Present plans include the installation of new bin equipment, new mixers, a weigh-batcher, and possibly three machines, to bring the production up to the required standards. It is also planned to truck lightweight expanded slag to the plant from Gary for the production of lightweight concrete blocks.

When completed, the plant alterations should provide a capacity at Waukesha comparable to that at the other two plants. With the trend toward the increasing use of prestressed concrete, it might appear likely that the site will gain in importance, since present installations there for prestressing the Spancrete slabs are of a permanent type, and sufficient area is available for possible expansion of this segment of the business.

(*Continued on page* 228)

Administration Of Concrete Specifications*

By STANTON WALKER
Director of Engineering
National Sand and Gravel Association and
National Ready Mixed Concrete Association

SPECIFYING the quality of concrete—a product manufactured immediately before use — presents problems not found for most other building materials. Steel, lumber, masonry units, etc., can be tested before they are used. In the case of concrete, only its ingredients can be tested in advance; the concrete itself cannot. Further, and uniquely, the user of it is jointly responsible with the manufacturer for its quality.

It is the ready-mixed concrete industry that has high-lighted the importance of specifications for the concrete itself, rather than for its ingredients and proportions. Before the predominance of ready-mixed concrete, the buyer-seller relationship which now prevails was not present. In the typical case the buyer and seller were the same; that is, the contractor mixed his own concrete. There was not the incentive for the buyer to police the seller as there is now — with identities so distinctly separated as in the case of the ready-mixed concrete producer and his customer.

Also, ready-mixed concrete presents some special problems of inspection and handling. The place at which the proportioning is done — and, frequently, the mixing—is distant from the point of use. The time element enters importantly and routinely. The batches are large—and there are other factors. Therefore, what I have to say concerning specifications will have special application to ready-mixed concrete.

Types Of Specifications And Their Evolution

There are various approaches to specifying concrete, but all of them fall in one of two broad categories or some combination of the two. There is the prescription type of specification. The purchaser specifies the ingredients, proportions, and consistency of the concrete. The concrete producer is required only to fill the prescription. Then, there is the performance type. The purchaser specifies the strength and certain other characteristics required by the job, such as consistency, maximum size of aggregate, etc. The concrete producer has a relatively free hand and a heavy responsibility in selecting materials and proportions to meet these requirements. And, as already said, there are the several combinations of these two approaches in which demonstrated performance is demanded and, at the same time, limitations are imposed on the prescription.

There was a strong impetus given the trend toward the performance type of specifications — guaranteed strength — during the early life of the ready-mixed concrete industry. It came from the pioneer producers. They thought of themselves as concrete specialists, who knew more than most about how to make good concrete and to control its quality. The buyer was easy to sell on the idea. He was glad to be relieved of the responsibility of doing more than to say what the concrete was supposed to do—without bothering himself with the problem of determining what materials, proportions, etc., were required to assure that it do it.

That presents a perfectly logical picture, does it not? Perhaps it should, but, unfortunately, it does not. What is wrong with the picture? That is a long story, and I can give you only the high spots.

First of all, a lot of people entered the ready-mixed concrete business who were not, by any stretch of the imagination, concrete specialists. Most of them meant (and mean) well but they were not (and are not) specialists. Then, as competition became more keen, corners were cut. Pencils were sharpened too sharp. Some wishful thinking was engaged in. And there was a certain amount of chiseling!

Another distortion of this logical-appearing picture became evident, wholly unrelated to what I have just said. There began to be a realization of the lack of accuracy in methods for measuring performance. It had been assumed, for example, that 3,000-p.s.i. concrete meant that test results would always be that high or higher. There was little or no understanding of the variations inherent in indicated strengths which are quite independent of the quality of the concrete — and that lack of understanding is only slowly being corrected. A single test cylinder that falls below the specified strength, no matter how it was handled, is considered cause for suspicion and, too often, for rejection.

That led to another evolution — the double-barreled specification. Minimum cement factor, maximum water ratio, and strength, as well as slump, aggregate size, etc., are specified. This type of specification has much to recommend it when intelligently drawn and administered—which can only be done in the light of a thorough understanding of testing errors. It protects the buyer against overly sharp pencils. It guides the producer in knowing more about what is expected of him and his competitor.

Examination Of Specification Types

Let's examine these three approaches. I have, undoubtedly, already made it clear that I do not like the conventional guaranteed-strength specification. I do not think that it represents a sound engineering approach to the attainment of its avowed objective.

Strength specifications are a source

*Presented at a dinner sponsored by the Southern California Rock Products Association and the Southern California Ready Mixed Concrete Association, September 26, 1956, Statler Hotel, Los Angeles.

of much uncertainty in estimating costs. The amount of cement required can honestly be underestimated, with that underestimate supported by laboratory tests. Tolerances in strength and estimates of the inevitable variations in strength can be underestimated—and generally are. A guaranteed-strength specification presents many serious problems of administration and of assessment of penalties. The returns are not in until the structure is built. More about strength specifications later.

I favor a prescription type of specification as being most protective of everyone concerned. Let me hasten to say that I am not against strength. It is the difficulty of administration of strength specifications that I fear. The prescription type that I favor offers a better guarantee of strength than the guaranteed strength type—and that is not double talk.

The prescription should be based on properly controlled laboratory tests which demonstrate that concrete of the required quality will be produced. These tests should reflect minimum strength-producing properties of available cement, minimum qualities of aggregates meeting specifications, and maximum slumps of concrete which are allowable. They should not reflect results of special tests made with better than average materials and lower than average slumps.

Then, filling the prescription should constitute conformance with the specification, assuming compliance with basic requirements as to mixing, elapsed time, etc. In a legalistic sense, the purchaser of prescription concrete can assure himself that the qualities have been batched only by having his representative supervise the batching. Legalistic or not, that is not realistic, convenient, or economically practical in a great majority of cases. The alternative, a desirable and feasible one, is for the user to deal only with responsible ready-mixed concrete producers and to accept their statements(or certifications) that proper quantities have been batched. That is the way it is done in a very large majority of cases, with no check on the quality of the concrete, except that based on the integrity of the producer.

Nevertheless, strength tests frequently are made for the prescription type of specification. It is entirely proper that there should be such a check on the adequacy of inspection. So, in a very large measure, the prescription specification takes on many of the aspects of the guaranteed-strength specification without the attendant evils and difficulties of administration. No reputable producer will fear that his concrete will not produce reasonably-to-be-expected strengths—if the sampling and testing are done correctly. Unfortunately, this is another very large IF!

Concrete Testing

Now, let me say something about testing and testing engineers. I am a testing engineer and have been for more than 40 years. I feel that I should be able to talk frankly about my brethren. The good testing laboratory is among the strongest support, if indeed it is not the strongest, in securing concrete of dependable quality. The bad testing laboratory has about the same effect as a quack doctor. It is dangerous. But most of the bad testing is not quackery. It is due to ignorance or incompetent personnel. There are a lot of testing laboratory people who know less about standards of sampling and testing than you do, and you are not testing engineers.

And then you, the employer of the testing laboratory, have a great influence on its operations. Some of you say that testing costs too much! So short cuts and the employment of incompetent personnel are forced. I don't know that first-handedly as to Los Angeles. I do know it first-handedly for a lot of places in the country, and I doubt if Los Angeles is much different. I don't know what your testing rates are, but I will bet they are too low to permit everything to be done just as it should be. In some places a testing laboratory is selected on the basis of competitive bidding! Would these same people select a doctor by competitive bidding? of course not!

A specification based on strength, implied or otherwise, which does not provide for the practical certainty that there will be a reasonable number of defective test results is economic dynamite. An understanding (on the part of both the producer and the user) of the facts which may lead to low strengths, as well as some knowledge of the normal frequency with which low strength may be expected, is absolutely essential to any proper interpretation of strength limitations.

Strength tests are performed in the midst of many influences difficult to control. Further, a large part, if not the largest, of the variations in strength results are due to such influences, rather than to variations in the concrete itself.

When the concrete is sampled, the temperature and other weather conditions are whatever they are and not what they were yesterday or last week. That has an influence even if all sampling and testing is done meticulously. The sample may constitute as little as 1 cu. ft. for a 6-cu. yd. batch, which is certainly not unusual. That represents one part in 162—0.6 of 1 percent. Certainly, it is difficult to avoid some error in sampling under the best of conditions—and the best of conditions are almost never obtained. Concrete test specimens are sensitive to temperatures to which they are exposed during the first 24 hours before they are scheduled to be cured under standard conditions—a schedule which too frequently is not followed. Then, there is handling and curing in the laboratory, capping, and testing.

The circumstances are aggravated by the fact that meticulous adherence to standard procedures requires difficult-to-obtain qualified personnel and a great deal of work—and it is expensive. The proper conduct of sampling and molding specimens for acceptance tests cannot be the casual part-time duty of personnel with other principal responsibilities, and there is an understandable tendency to short-cut some phases of standard procedures.

Interpretation of Strength Tests

In any case of limitations on strength, guaranteed or otherwise, both the producer and user should know:

1. What average strength will be secured, based on tests, for the proportions to be used, and, if it is known, the strength that will be obtained from the cement to be used. If that is not known, which is more than likely, he should know the average strength from the lowest testing cement available for use.
2. Based on experience, what percentage of the strengths should be expected to fall below, say, 90 percent, 80 percent, and 70 percent of the average strength obtained.
3. Just what tolerances, if any, of low-strength results are allowed in the strength specification which it guarantees.
4. Just how much is needed to over-design to be assured that the low strength which must be expected will not exceed the tolerances allowed. (If there are no tolerances stated or implied, the specification is not practical of administration.)
5. That tests will be made competently and strictly in accordance with standard procedures.

In determining tolerances, amount

(*Continued on page* 220)

How to use

BLAW-KNOX Ready-Mix Package to make more profit...

BLAW-KNOX READY-MIX PACKAGE
Hi-Boy TRUKMIXERS • Bins • Batchers and Central Mixing Plants • Steel Curb, Curb, Gutter and Sidewalk Forms • Concrete Buckets •

AT RIGHT — A typical job where Evansville Concrete Company supplies ready-mix concrete and a set of Blaw-Knox Steel Street Forms for a customer.

BELOW — Newest of the two Blaw-Knox Batching Plants in operation for Evansville Concrete Company. This is a central mixing plant with push-button controls.

Evansville Concrete Company has the formula—

In addition to their regular ready-mix service, Evansville Concrete Company owns Blaw-Knox Steel Curb, Curb and Gutter and Sidewalk Forms for use by their customers. This kind of service assures this Evansville ready-mix operator a steady, profitable business. Blaw-Knox Hi-Boy TRUKMIXERS haul ready-mix concrete from two fast, accurate Blaw-Knox Batching Plants the year around. One plant is for dry batching, the second plant, shown above, is a push-button operated Central Mixing Plant.

Blaw-Knox Hi-Boy TRUKMIXERS contribute to this profitable ready-mix operation. Their special design allows them to haul maximum payloads within legal weight limitations so Evansville Concrete Company can get the most concrete hauled in the fewest trips.

For complete information on large or small Ready-Mix operation see the following Blaw-Knox Bulletins: For TRUKMIXERS — No. 2455-R; For Batching Plants — No. 2488; For Steel Street Forms — No. 2259-R. See your local Blaw-Knox Distributor or write to Blaw-Knox.

BLAW-KNOX COMPANY

Construction Equipment Division

35 Charleston Ave., Mattoon, Illinois

IS YOUR CONVEYING SYSTEM STAGGERING?

the F-H Airslide®

can stabilize your conveying operation

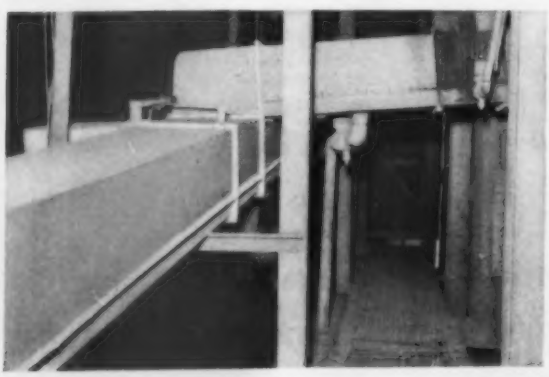
The phenomenal costs and waste that result from outdated and antiquated conveying systems can be, and have been, reduced to a gratifying minimum when the Fuller-Huron Airslide fluidizing conveyor comes into the picture.

The Airslide's record for low maintenance, high-volume conveying of dry, fine materials is outstanding wherever it is used . . . its operational benefits are substantial.

Low-pressure air is introduced into materials like alumina, phosphate, silica flour, cement, flour, filler dusts and many others, through a porous fabric, causing the material to flow in the upper section of the inclined Airslide, the degree of incline depending on the material to be conveyed. Further, the F-H Airslide can be used singly or in combination with other Fuller conveying systems, such as the Airveyor ® or Fuller-Kinyon system.

Singly, or in combination with other Fuller conveying systems, you're bound to save more with the Airslide. The first step toward this goal is to call on Fuller. We'll be happy to provide you with details as well as a "no-obligation" example of how the Airslide can do your present conveying job better.

Write, right away, for descriptive Airslide literature.



Visit us at the
Concrete Industries Exposition
Kiel Auditorium, St. Louis, Mo.
Booth 81 & 82, Feb. 25-28

FULLER COMPANY GENERAL AMERICAN TRADE MARK

Fuller

. . . . pioneers in harnessing AIR

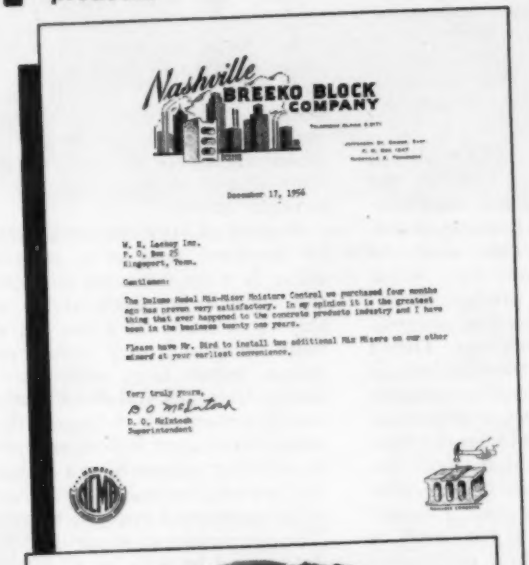
FULLER COMPANY
102 Bridge St., Catasauqua, Pa.

FH-45
3017

SUBSIDIARY OF GENERAL AMERICAN TRANSPORTATION CORPORATION
Chicago · San Francisco · Los Angeles · Seattle · Kansas City · Birmingham

37 LONG YEARS OF "KNOW-HOW" IN THE CONCRETE PRODUCTS INDUSTRY

Yes! **The two men who wrote these letters "KNOW HOW" to choose equipment that will improve the quality of their products.**



Nashville BREEKO BLOCK COMPANY

December 17, 1956

W. H. Lackey Inc.
P. O. Box 25
Kingsport, Tenn.

Gentlemen:

The Deluxe Model Mix-Mizer Moisture Control we purchased four months ago has proven very satisfactory. In my opinion it is the greatest thing that ever happened to the concrete products industry and I have been in the business twenty one years.

Please have Mr. Bird to install two additional Mix Mizers on our other mixers at your earliest convenience.

Very truly yours,
D. O. McIntosh
D. O. McIntosh
Superintendent

FISCHER LIME & CEMENT COMPANY
Building Materials

June 22, 1956

Mr. W. H. Lackey
W. H. Lackey & Company
P. O. Box 25
Kingsport, Tennessee

Dear Sir:

Since approximately one month has gone by since we installed your Mix-Mizer Automatic Moisture Controls on two mixers for our Besser Concrete Block machines, I want to drop you a few lines and report.

For many years, we have had one good mixer operator, but never seemed to be able to have a good man on the second mixer.

Since the installation of your Mix-Mizers, both our men are equally proficient. In the event of our having to replace either one of them, I will no longer be worried about having a long period of bad mixes due to an untrained operator.

I further wish to comment on your interest in the installation, even after the sale was made, for I know it costs money to make two long-distance calls to check up and see that your installation was doing everything that you had promised.

I have no hesitancy in recommending this equipment to any block manufacturer, for in the event his aggregates respond differently to ours, I know that you are equipped to change the electronic devices so as to adjust the equipment to job-site variations. Please do not hesitate to have any of your prospective buyers contact me.

With kindest personal regards, I am

Very truly yours,
FISCHER LIME & CEMENT COMPANY
W. A. Carter
W. A. Carter

"THE LARGEST SOUTH"

"MIX-MIZER"
Automatic Moisture Control
for
BLOCK AND CONCRETE PIPE MIXES

MIX-MIZER is being recommended by men like Mr. McIntosh and Mr. Carter all over the country, even in Paris, France.

INVESTIGATE MIX-MIZERS BECAUSE

- It is a must in producing uniform textures, strength and colored units.
- Variation of moisture content of aggregate does not affect operation.
- It is guaranteed to operate in your own plant.
- MIX-MIZER Warranty, one year.
- Money back guarantee on 10 day free trial.
- One of the three models will fill the requirements of any size plant.

Prices, F.O.B., Kingsport, Tenn.

STANDARD MODEL	**$395.00**
DELUXE MODEL	**495.00**
SUPER MODEL	**695.00**

AMERICAN CONCRETE PIPE ASSOCIATION

W. H. LACKEY, INC.
P.O. BOX 25, KINGSPORT, TENN.

MEMBER NCMA NATIONAL CONCRETE MASONRY ASSOCIATION

of over-design, etc., it should be clearly understood that:

1. If the concrete comes from an excellent operator with excellent testing facilities:

(a) Fifty percent of the tests will fall below the average of all (that is true, or substantially so, no matter how good or bad the operation is).

(b) About 10 to 15 percent of the tests will fall below 90 percent of the average.

(c) Some small percentage, say, 1, 2, 3, or 4, will fall below 80 percent of the average, and there is always the likelihood of some one test showing almost anything.

2. If the concrete comes from a "pretty good" operator, a better than average operation, with excellent to good testing facilities, the probabilities are that:

(a) Fifty percent of the tests will be below the average of all.

(b) Fifteen to 20 percent, or maybe more, will fall below 90 percent of the average.

(c) About 5 to 10 percent will fall below 80 percent of the average and perhaps as much as 1 percent below 70 percent.

3. If the concrete comes from a not-very-good operator with not-very-good testing facilities available, and strength limitations are to be met, let me suggest rabbits' feet or loaded dice as aggregates!

I find it difficult to convince the average specification writer or, for that matter, average member of the ready-mixed concrete industry of the importance of these cold facts. So many producers know that they can do better than this. But they can't! Even when work is done in a well equipped and competently manned laboratory, some percentage of tests (1, 2, or 3 percent) must be expected to fall below 90 percent of the average—and remember, 50 percent are always under.

When specification writers can be made to understand these facts, administrable strength specifications will become feasible but, in my firm opinion, they are still not the most desirable type.

What Is The Answer?

What is the answer? Certainly you do not want a vaguely drawn prescription specification calling for mixtures of 1:3:5, 1:2:4, 1:1½:3, etc. Certainly you do want to have assurances that adequate strength for the structure will be available. But I do not think you want a simple statement of required strength, leaving to the judgment of the supplier or his agent the selection of proportions which will develop it, depending upon the uncertainties of tests of field samples to determine compliance.

I referred earlier to a prescription specification based on properly controlled laboratory tests. I should amplify that statement, lest it be misinterpreted. I do not mean that you should have a different prescription for each job or each producer based on a multiplicity of groups of tests and combinations of materials. In the general case, and leaving out of account large and special projects with elaborate control facilities, I do not think there is enough difference in the materials and in the ability of different producers to justify any such fine distinction.

Therefore, I would establish classes of concrete based on the minimum cement factor, maximum water ratio, range in slump, maximum size of aggregate, range in aggregate proportions, etc., which have been shown to produce the required strengths under approximately minimum conditions. Then I would see to it that these limitations are adhered to. I would not consider it poor economy to secure better than these specified results under the more favorable conditions that would frequently occur. I would consider that only a desirable bonus. I would make strength tests as frequently as necessary to check on compliance with these minimum requirements and I would interpret the results in the light of a knowledge of variations reasonably to be expected.

What variations in strength are reasonably to be expected? I would suggest that a tolerance of somesomething of the order of 15 percent of the tests falling below 90 percent of the average would represent reasonably good performance, the average strength being equal to or greater than the strength designated for the class of concrete specified. There should also be a tolerance at a lower level—say, 1 or 2 or 3 percent below 80 percent of the average. Tolerances should be realistic. Under the best circumstances, field tests made 28 days after the work is in place represents, it seems to me, an unsatisfactory basis for determination of compliance.

I know that there are many members of the industry which I represent who will say that this type of specification takes away from them an advantage over a less skillful competitor or the contractor mixing at job site. I don't believe it! I think that strength specifications more often than not will give their less skillful competitors (and sometimes less scrupulous ones) an advantage over him!

Closure

This problem of concrete specifications and their administration can be examined from a number of different points of view. To discuss all of them at one time would tax your patience too much. Let me close by pointing to a number of miscellaneous, but not always related, factors which merit consideration.

I have said much about strength, as reflected by strength tests, primarily from the point of view of errors inherent in them. I have also emphasized that I am not against strength. But, leaving out of account the problems presented by these inherent variations, let us look a little more closely at the significance of strength values.

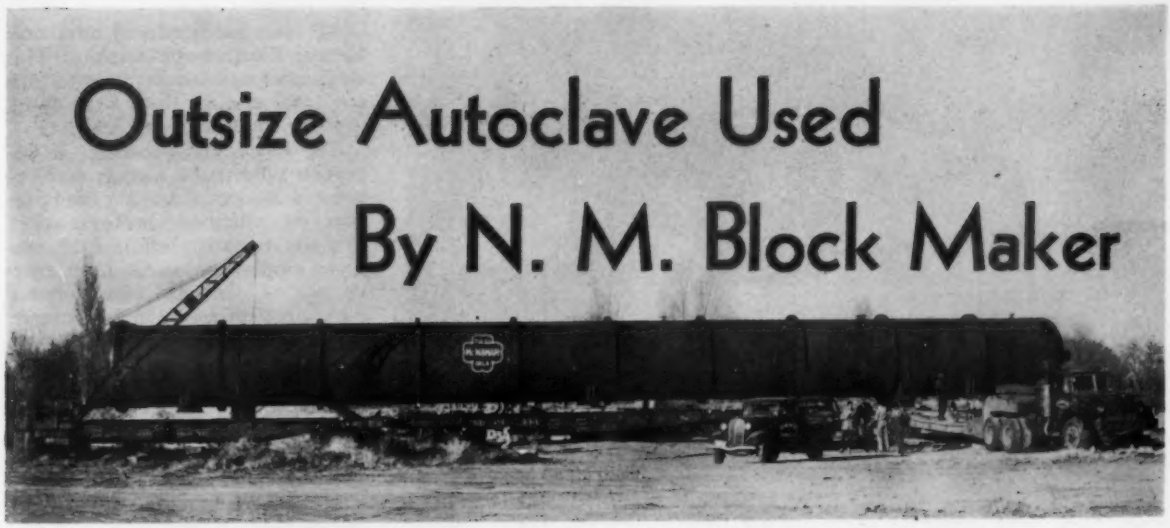
First of all, strength as measured by standard tests is a transitory thing. It is the measured strength of the standard specimen at the time the test is made. It is not the ultimate strength. It may, among other things, reflect large differences in 28-day-strength-producing properties of cement which largely disappear at later ages. It does not reflect, in anything approaching a quantitative fashion, the load-carrying capacity of reinforced concrete members. The compressive strength of concrete determined by a 6- by 12-in. cylinder affords only a relative measure of ability to resist stresses in a beam or, for example, a spiral column. Further, the same concrete in test specimens of different dimensions gives different unit strengths. So after all, measured strength is only relative to the ability of concrete to resist stresses.

Also, strength is not a sufficient measure of the overall ability of concrete to perform. For example, strength is no criterion of the ability of concrete to resist the aggressive action of sea water, except to the extent that it affords a general measure of quality—of sufficient cement, low enough water ratio, etc. What we want is good concrete; and strength alone is an inadequate and over-simplified measure of ultimate quality.

However, we do want to make strength tests as a guide in the selection of proportions and as a check on adherence to them. I have already pointed to the importance of exercising care in testing. I should supplement what I have said by emphasizing that the know-how for exercising the required care is clearly spelled out in the nationally and interna-

(*Continued on page* 224)

Outsize Autoclave Used By N. M. Block Maker



The autoclaving cylinder, 10 ft. in diameter and 120 ft. long, before delivery to the Crego Block Company, Albuquerque, N. M. This is perhaps the largest autoclave in existence, handling 9,000 units per load.

By HARRY F. UTLEY

Another ON THE SPOT Report

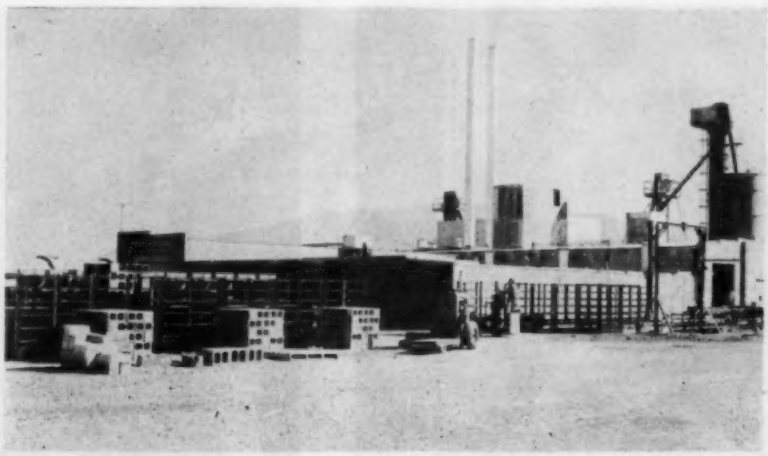
BEN B. CREGO, formerly a chief inspector for the U. S. Army, Corps of Engineers, left the service back in 1946 to launch a concrete block manufacturing venture in Albuquerque, N. M. The business proved successful from its inception, and during the intervening decade Mr. Crego laid the plans for the eventual erection of a newer, larger, completely modern plant.

Early in 1956 the new plant became a reality. The many concrete block makers and others closely identified with the construction industry who have visited the new Crego Block Company operation in Albuquerque unanimously agree that it is one of the most up-to-date and efficient layouts in the entire West.

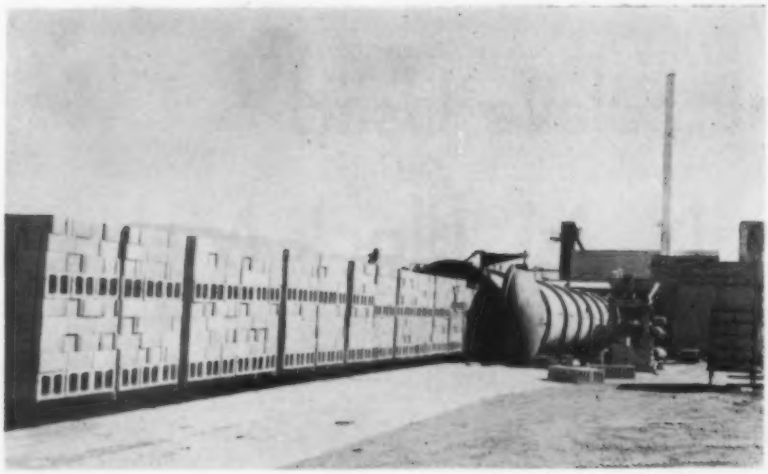
The company not only produces the blocks; it mines and processes its own aggregates, as well. Its standard aggregate is a red scoria obtained from a deposit about 50 miles from Albuquerque. The lightweight volcanic material is excavated, stockpiled, and loaded into trucks by a ¾-cu. yd. Lorain shovel and an Allis-Chalmers tractor-bulldozer. Two 275-hp. Mack Cummins diesel truck-trailer units, each carrying 24-ton cargoes, are in regular service in the long pit-to-plant run.

Held in open storage at the plant in Albuquerque, the scoria is transferred to the receiving hopper in the crushing-and-screening buildings by a Hough Payloader. Two finished sizes are processed, plus 3/16, minus ¼-in., and minus 3/16-in. down to pan. Reduction is accomplished by an Austin Western 10- by 24-in. jaw-crusher and Bonded Scale 48- by 20-in. rolls, the two sizes being separated by a pair of Universal 4- by 8-ft. single-deck vibrating screens. Screen oversize is sent back for further crushing; rejects return to the roll-crusher in closed circuit.

The fine and coarse aggregates are separately stored, then automatically blended by Syntron feeders before going to the weigh-batcher ahead of the Stearns 50-cu. ft. batch mixer and skip. Bulk cement is used and is stored in a 600-bbl. silo. Feed hoppers ahead of the weighing equipment are kept filled automatically by Bin-Dicator controls.



The main portion of the plant, with curing rooms and cubing area in the foreground.



A train of cubed blocks being run into the autoclave for final curing with high-pressure steam.

Above: Crego's office occupies a street-frontage portion of the 5-acre plant site.

All units are produced on a new Stearns Electromatic machine. This equipment enables the plant to turn out 1,080 modular 8- by 8- by 16-in. units or equivalents per hour.

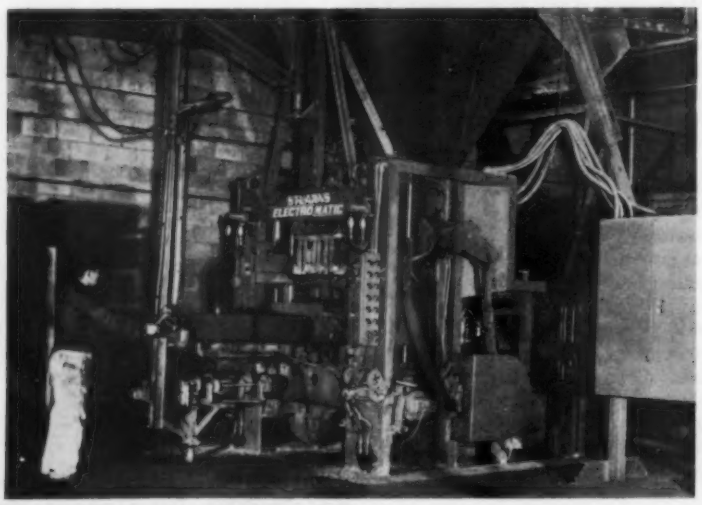
The Electromatic machine in operation reflects the highest development in modern automatic, compaction - by - vibration performance. Without apparent effort (the machine employs no cams, open gears or pinions) the units move forward on plain pallets in a steady stream, to be whisked away, two palletloads at a time, to waiting racks by the operator of the pneumatic offbearing hoist. Empty pallets are automatically conveyed along the side of the machine and are mechanically brush-cleaned, oiled, and wiped.

Vibration is imparted to the moldbox by twin 7½-hp. 3500-r.p.m. motors, and the box can be quickly adjusted to make units from 4 to 12 in. in height. All bearings are lubricated automatically from a central reservoir while the machine is in operation. A pushbuttón control panel is conveniently located in front of the machine. "Jogging" buttons for each phase of the operating cycle allow the operator to reverse the machine if necessary, should a jam occur. Sequence of operation is controlled by rotary limit switches.

Curing is a two-phase operation; the pre-cure cycle is accomplished in conventional wet steam rooms while the blocks are still racked and palleted as they come from the machine. They are removed by the fork-lift operators, cubed, and loaded onto flange-wheeled cars; and the train is

Below, left: Mixer and overhead batch box, with weighing-batching equipment (background).

Below: High-speed machine operation and a fast cycle enable this molding machine to turn out 1,000 8-in. units hourly.



then run into a McNamar 10- by 120-ft. insulated cylindrical autoclave for final curing under high-pressure steam.

This autoclave is reportedly one of the largest in existence. It has a shell thickness of ¾-in. A-212 Grade B quality plate, which has a 1/16-in. corrosion allowance. Any autoclave buyer should demand at least this allowance. Mr. Crego is using a 4-in. diameter blow-down pipe; and it requires approximately an hour to empty the cylinder. Company executives feel that this slow blow-down period gives the best results for the aggregates which are used. In the event a shorter period is required, a 10-in. diameter blinded nozzle could be used.

To move the cubed units into the autoclave, 15 rail cars are used. Each car bed is approximately 80 by 96 in. in size, and will hold eight 75-block cubes, or 600 units per carload. Two sets of rails are set in concrete in front of the autoclave for a distance of about 150 ft. This enables personnel to work back and forth across the rails without any difficulty. A Hough Payloader is used to move the string of cars into and out of the autoclave. While one 15-car string is in the autoclave, the other is being loaded with cubes for curing.

Daily production is about 9,000 units (8- by 8- by 16-in. equivalents), and the entire output is both pre-cured and autoclaved. The company does one of the most lengthy curing jobs on record, units remaining in the pre-curing steam rooms for 8 hr., followed by 12 hr. in the autoclave. The cubed blocks are stacked so as to fit snugly into the autoclave with as little waste space as possible, so that the 10- by 120-ft. cylinder is able to take a capacity 9,000-block load in a single filling.

After autoclaving, the units are removed and ready for use, although the company maintains a large, flexible yard stock to supply any demand. And the demand continues heavy, with construction running unusually high.

Complementary equipment used on the 5-acre site includes three Erickson fork-lift trucks and a Columbia guillotine for split blocks.

The scoria units weigh about 27 lb. each and have a consistently low moisture content of about 24 percent. Strength is uniformly maintained well in excess of the required 1,000 p.s.i. Average drying shrinkage, as determined by the Albuquerque Testing Laboratory, is only 0.03 percent. This is about one-third that in block cured conventionally.

At the rear of the plant is this crushing and screening department, where the red scoria aggregate is sized and blended.

Spaulding Materials Acquires Oceanside Transit-Mix, Inc.

George E. Spaulding, president of the Spaulding Materials and Concrete Company, Oceanside, Calif., has announced the purchase of Oceanside Transit Mix, Inc., which has a plant at Lawrence Canyon. The newly-purchased ready-mix plant will be operated as an adjunct of Spaulding's main yard in Oceanside.

In addition to its Oceanside facilities, Spaulding Materials maintains yards in Del Mar and Vista, supplying and delivering ready-mixed concrete to contractors throughout the northern part of San Diego County.

C³ TEL-A-SLUMP

SIX MODELS — LOOK FOR YOURS

TRANSIT MIXERS
JOB MIXERS
PAVERS (single drum)

CENTRAL READY MIX
PRECAST CONCRETE

NEW *DIAL-A-MATIC* MODELS

AUTOMATICALLY controls the slump of your concrete regardless of changes in the moisture of either or both of your aggregates. Can be set for any slump and any size load in one second. Water is AUTOMATICALLY added until the slump is right, then water is shut off AUTOMATICALLY.

INDICATING MODELS

tell the slump of the concrete and also let the operator know when the concrete is thoroughly mixed. This unit has acquired wide acceptance throughout the entire concrete industry for workable or plastic concrete.

RECORDING AND INDICATING MODELS

do everything that the Indicating Tel-A-Slump does plus leaving a permanent written record of the slump, and many facts relative to time. Valuable time studies can be made with this information. Also proof to your customers as to time and slump of your deliveries.

See all of this equipment displayed at Booth No. 13 at the NCMA Convention in St. Louis, Mo. Feb. 25-28.

Engine Driven Mixers

Electric Driven Mixers

CONCRETE CONTROLS CORPORATION C³

1012 E. GENEVA ROAD — WHEATON, ILLINOIS

Mozark Concrete Products Locates in Springfield, Mo.—Plans to Add Prestressing

Springfield, Mo., is the site of a new industry, the Mozark Concrete Products Company, which will build a plant in that city. Construction was scheduled to begin immediately on a main building and three curing rooms.

Products of the concern, which was formerly located in Osceola, Ark., are concrete culvert, sanitary sewer pipe, and concrete irrigation pipe. Officials of the firm stated that they hope to add pre-tensioned and post-tensioned bridge beams and prestressed bridge slabs. Eventually the present working force of 25 is expected to be increased to 75.

Heading the firm are D. S. Laney, president, and P. F. Quinn, vice-president in charge of production.

Moisture-Expeller-Sealer Available for Masonry Surfaces

A pigmented protective sealer which can be applied to damp masonry surfaces to prevent moisture seepage and damage has been developed by Rust-Oleum Corporation, Evanston, Ill. Surfa-Sele is formulated with a specially processed fish oil vehicle which has an unusually low surface tension. This property gives the coating great penetrating and wetting ability.

Upon application to a damp masonry surface (from which excess moisture has been removed), the coating penetrates deeply into the pores; and because of its wetting power, which is greater than that of water, it reportedly displaces trapped moisture and surface water and adheres tightly to the surface.

According to company officials, this product is recommended for all kinds of masonry walls; it is especially useful and safe in food-processing plants where moisture and steam present a maintenance problem.

To give his audience an idea of the tremendous volume of cement and concrete produced by manufacturers in the United States annually, Charles E. Scholer, Kansas State College expert on concrete, recently used a graphic illustration. Said he, "People just don't realize how much cement we make—300,000,000 barrels a year. That's enough to put a 4-ft. sidewalk around the world *33 times* at the equator, or to build the Kansas Turnpike around the world."

7-Acre Vermiculite Deck Used to Insulate Roof Of Eberhard-Faber Plant

Seven acres of vermiculite insulating roof deck were applied recently on a construction project in Mountaintop, Pa., according to an announcement released by the Zonolite Company, Chicago vermiculite producers.

Application of the material was made on the headquarters plant of the Eberhard Faber Company, oldest writing instrument company in this country. The structure is expected to be ready for occupancy this spring.

Vermiculite concrete (1:6 mix) was pumped over specially cut lengths of galvanized corrugated steel decking. Joist spacing, 6 by 8 ft., spanned with trussed T's to receive the 3-ft. pre-cut corrugated sheets.

Precast Concrete Slabs Form Toronto Parking Deck

In Toronto, Canada, the city parking authority took a big step toward the solution of its metropolitan parking problem when it roofed a section of the subway open cut with precast concrete slabs to make a parking deck. If the plan works well, the project will be extended.

In constructing the initial section, 1,895 precast lightweight concrete slabs were used. Cars reach the 264-ft. long area by a 16-ft. ramp. The width of the space is 13 ft. at one end and 91 ft. at the other.

The channel-type slabs are 5 in. deep, 18 in. wide, and have a 2-in. thick deck portion between the legs. The lightweight expanded-slag concrete has an ultimate 28-day strength of 3,000 p.s.i. High-bond reinforcing bars in the legs are welded at the ends to specially designed imbedded weld plates, and all slabs are welded to the supporting steel frame bents.

The precast concrete members are covered by one inch of asphalt paving. Cost of the entire project will be about $125,000.

Concrete Specifications

(*From page* 220)

tionally accepted standards of the American Society for Testing Materials. These standard test methods are based on a knowledge of the difficulties of securing accurate results and, accordingly, are drawn up in such a manner as to require meticulous care in their conduct—which presents a temptation to take short cuts. That should be resisted.

"Cleaned with a whisk broom, putty knife and . . .

EDI-COTE 103 in half the time!"

says owner* of this 17 year old mixer that looks like new.

EDI-COTE #103 is a revolutionary new release agent that prevents concrete from bonding to mixer blades and parts. EDI-COTE #103 eliminates the use of air guns and sledge hammers in the daily clean-up. EDI-COTE #103 creates a non-hardening film which prevents the forming of a bond between concrete and metal. It adheres rigidly and will not dissipate due to chemical action or abrasion. One application of EDI-COTE #103 will remain effective throughout the longest working day. EDI-COTE #103 can be applied with brush or spray. Shipped in 55 gallon drums. 5 gallon cans available for trial shipments only. Order EDI-COTE # 103 today!

* Frank Erdman & Son, Milwaukee, Wisconsin

Edick LABORATORIES
427 West National Avenue
MILWAUKEE 4, WISCONSIN

For further information on EDI-COTE #103, see your NCMA Technical Bulletin No. 2, Attachment No. 1, March 3, 1955.

A complete autoclave installation engineered and fabricated by McNamar for the Hovey Concrete Products Co., Inc., Santa Fe, N. M.

Custom BUILT . . . by McNAMAR

McNAMAR PRODUCTS

- ROTARY KILNS
- BINS
- HOPPERS
- HEAT EXCHANGERS
- PROCESS PIPING
- PROPANE STORAGE TANKS
- PRESSURE VESSELS
- GAS COMPRESSOR PLANTS
- REFINERY TOWERS
- TRUCK TANKS (Propane-Gasoline)
- GASOLINE PLANTS

From the world's largest autoclave manufacturer comes the most advanced engineering and pre-fabricating ability available in the installation of autoclave plants.

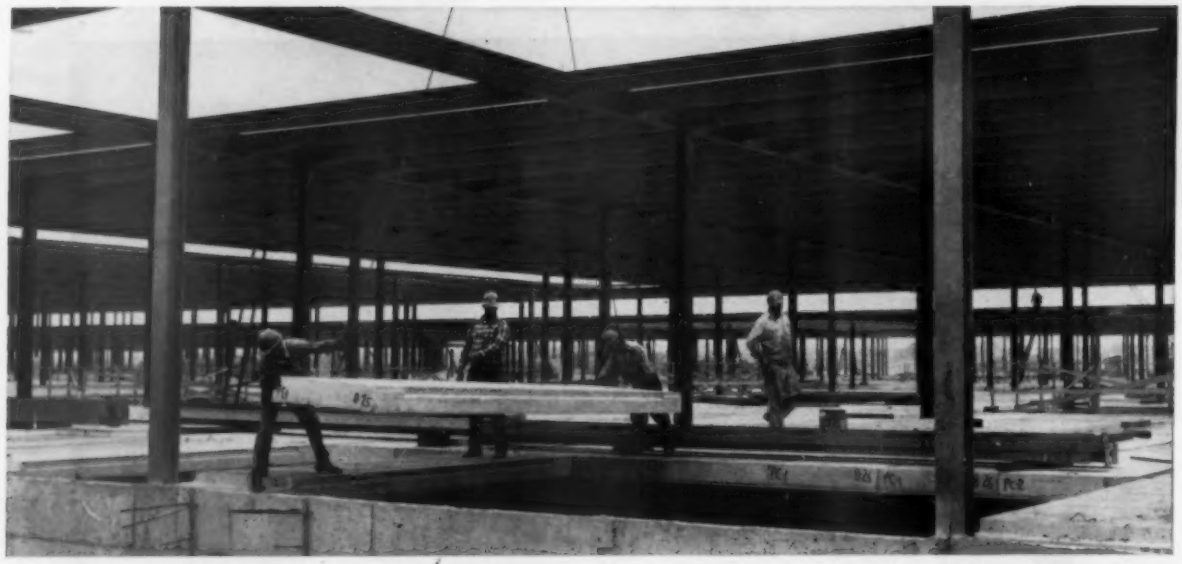
McNamar's custom built installations are designed, built and engineered in the McNamar plant by skilled craftsmen.

Insure your future business now by dealing with a manufacturer backed by 18 years experience in the field.

Call, write or wire McNamar Boiler and Tank Company for further information.

McNAMAR BOILER & TANK CO.

BOX 868 — TULSA, OKLAHOMA CHerry 2-6291



PRECAST PANEL SWINGS into position in 900,000 sq. ft. floor-area shopping center at Mineola, N. Y. Note the clean working area. Webb & Knapp, Inc., owners. Brugnoni & Boehler, architects; Severud-Elstad-Krueger, consulting engineers. Webb & Knapp Construction Co., supervised field work. George A. Fuller Co., general contractor. Precasting by Precrete, Inc. All are in New York City.

Precasting on-site beats tough time schedule

PROBLEM: Cast and place over 4,800 reinforced-concrete floor panels in less than 3 months, at a giant shopping center in Mineola, N. Y. . . . 20 traffic-choked miles from contractor's home yards.

SOLUTION: Precast all panels on the job site! Thus, eliminate threading 9,600 tons of concrete through traffic jams.

Precasting was started immediately, independent of over-all work schedule and job progress. Completed panels were coded and stockpiled until needed. This eliminated slab formwork and scaffolding within the building and work progressed faster on the uncluttered site.

Each 2-ton panel measured 4'x16', 2¼" thick at center, 9" at flange ends. Ninety molds, arranged end-to-end in double rows of 12, yielded one pour a day—5,760 sq. ft. of panels day in, day out.

The material was a 4" slump, 3,500 psi concrete. Evenly paced delivery direct to the forms, in uniform batches, was assured by using ready-mixed concrete, properly processed in truck mixers of certified design, capacity, mixing speed and water control accuracy.

MOLDS were stripped day following the pour. Because concrete slab strength had reached only 800 psi, panels were removed by crane-handled vacuum pad.

STOCKPILED PANELS, coded for quick identification. Precasting permitted contractor to stockpile floor panels during grading, foundation pouring and steel erection.

You have a right to insist on this Rating Plate. It certifies compliance with the high industry standards maintained for your protection by the Truck Mixer Manufacturers Bureau.

BLAW-KNOX CONSTRUCTION EQUIPMENT DIV.
Mattoon, Ill.
CHAIN BELT COMPANY
Milwaukee, Wis.
CHALLENGE MANUFACTURING CO.
Los Angeles, Calif.
CONCRETE TRANSPORT MIXER CO.
St. Louis, Mo.
CONSTRUCTION MACHINERY CO.
Waterloo, Iowa
THE JAEGER MACHINE COMPANY
Columbus, Ohio
LeTOURNEAU-WESTINGHOUSE CO.
Indianapolis, Ind.
THE T. L. SMITH COMPANY
Milwaukee, Wis.
WHITEMAN MANUFACTURING CO.
Pacoima, Calif.
WILLARD CONCRETE MACHINERY CO., LTD.
Lynwood, Calif.
WORTHINGTON CORPORATION
Plainfield, N. J.

HYSTER INDUSTRIAL TRUCKS ARE *BUILT* TO DO THE HEAVY WORK

XA-60 with side-shift apron and block forks. Four Hyster trucks are used for yarding and truck loading blocks and takes care of a plant production of 40,000 per day.

Pictured above is one of many typical examples of how Hyster® Industrial Trucks are helping to effect tremendous savings in the cost of handling Concrete Products.

Even if you are now using lift trucks or have never used industrial trucks of any kind, your Hyster dealer can show you how you can quickly realize more profit from your operation with these multi-purpose utility tools. Your Hyster dealer knows materials handling . . . he is an expert on the problems and their solution. He can help you with special techniques and cost reducing methods. Call him today...why not take advantage of his materials handling know-how?

HYSTER DEALERS GIVE YOU ALL 3!

1 **PLANNING**—your Hyster Dealer will plan your materials handling operation from scratch, or will analyze your present system to see if it can be improved.

2 **THE RIGHT TRUCK** — for your job from Hyster's complete line of industrial trucks (1,000-30,000 lbs.) and over 100 job-attachments for economical load handling.

3 **THE RIGHT SERVICE** — ample spare parts stock, shop facilities, factory-trained mechanics and an efficient field service that keep your Hyster lift trucks going on your job, wherever your job might be located. Hyster trucks are noted the world over for their low downtime.

Materials Handling Trucks from 1,000 to 30,000 pound capacities

2926 N. E. CLACKAMAS, PORTLAND 8, OREGON
1026 MYERS STREET.....DANVILLE, ILLINOIS
HYSTER N.V. .....NIJMEGEN, THE NETHERLANDS
FACTORIES: Portland, Oregon; Danville, Illinois; Peoria, Illinois; Nijmegen, The Netherlands.

HYSTER

HYSTER COMPANY

Milwaukee Block Prod.

(*From page* 210)

Hales Corners Plant After surveying the present construction developments in the area south and west of Milwaukee, the two partners decided on Hales Corners as a highly suitable location for the latest of their plants. The decision was logical, in view of the fact that existing demands being met by deliveries from the West Allis operation indicated the feasibility of a new production site. Construction had just been started on a small plant in that area, and as its planned production was considered inadequate, the business was purchased by Nagy and Hintz before the installation of equipment was completed.

Located on U. S. Highway 45 just south of Durham Hill, the plant site covers approximately 5 acres. Curing rooms already built were lengthened, others were added, and, in effect, the entire plant building was redesigned and rebuilt. The structure, started early last summer and completed in September, has approximately 8,000 sq. ft. of floor space.

Aggregates and cement are acquired from the same sources as those furnishing the West Allis plant. However, all bulk materials come into the plant *via* truck and are handled into the bins by means of truck hoppers, belt conveyors, and cement elevators. A short belt feeder is used to convey aggregates from the hopper to a 68-ft. bucket elevator which raises them to a 3-compartment (2 sand, 1 screenings) 122-cu. yd. capacity bin. Bulk cement is transferred from its receiving hopper, by screw conveyor, to a 55-ft. bucket elevator and raised to a 200-bbl. bin. As in the other plants, Butler Bins handle all raw materials.

Approximately the same mix proportions are used here as at the other plants. Sand and screenings are discharged into a 50-cu. ft. Besser mixer, where the moisture content of the sand is automatically checked by an Edick Laboratories water control prior to adding water to the mix. After the cement has been added to the aggregate in the mixer, sufficient water is admitted by the control unit to establish the correct mix. Each batch contains enough material to produce about 90 8-in. units.

The block machine is a Stearns Model 15. It is planned to add an Electromatic machine of the same manufacture, as a companion unit this summer. At a production rate of about 720 8-in. equivalent units per hour, the 3-block pallets are removed from the machine by a Stearns magnetic offbearer and placed on 6-tier, 72-block racks.

When a rack is filled, it is removed by a battery-powered Automatic Transporter platform lift-truck and taken to the curing rooms. Five of the latter have a capacity of 20 racks of block, and the sixth has room for 30 racks, or a total of approximately 9,300 standard 8-in. units.

The steam-generating equipment as is used at the West Allis plant, and the curing cycle is also similar. The kilns are likewise equipped with doors at each end, fitted with Universal Door Carrier doors. The quick steam-exhausting apparatus with vertical ducts has been installed over the inside doors of the four kilns now in use.

The blocks have a strength of around 800 p.s.i. when removed from curing. They are cubed by hand, and the cubes are stacked by a Buda gasoline-engined-powered Allis-Chalmers fork-lift truck. Since the aggregates and mix employed at this operation are similar to those used in the other two plants, a uniform texture is maintained for blocks produced from any of the plants.

General Two jobs for which the company furnished concrete blocks include the $6,000,000 Milwaukee Y.M.C.A. and the new $3,500,000 Lutheran High School, these two taking about 400,000 units. Last year the company furnished 130,000 units for the Northwest High School of Milwaukee. At present two other large jobs are under way, one in Waukesha, and the other the West Division High School of Milwaukee, which will require over 300,000 units.

The Waukesha Block Company and the Hales Corners Concrete Block Company are separate corporations. Mr. Hintz is president of both companies, while Mr. Nagy is president of the West Allis Concrete Products Company. Dan Noonan is general manager of the Hales Corners operations, and Melroy Wehr functions similarly at the West Allis plant.

The company is thoroughly in accord with the importance of keeping the strength of its products high. The West Allis plant is equipped with one of the latest Forney testing machines, and daily tests are run on representative blocks taken from the production at all plants.

Of Plants and People

Plans for a $150,000 expansion project have been announced by officials of the Capitol Concrete Products Company, Topeka, Kans. The project will include a high-pressure-steam system to cut curing time.

Incorporated as the Brown Supply Company of Kansas, a branch plant of the Brown Supply Company, a Texas firm, has been established in Garden City, Kans. The new plant will produce up to 2,400 ft. of 12-in. and 15 in. concrete pipe daily.

Texcrete Structural Products Company, Dallas, Tex., reported net sales of $431,449 for the six months ending November 30, 1956, as compared with $184,422 for the corresponding period in 1955, according to Ralph B. Rogers, president. Earnings for the six months were $37,023, compared with a loss of $43,580 in the same months of the preceding year. Texcrete, an affiliate of Texas Industries, Inc., produces precast concrete structural elements.

At Kalispell, Mont., a fire thought to have been started by the explosion of an oil heater, destroyed the plant of McElroy & Eiken, producers of ready-mixed concrete. Officials of the firm stated that the loss was about $25,000.

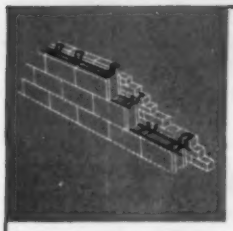
One of the newest industries of Pueblo, Colo., is the Pueblo Pre-Stressed Concrete Company, whose facilities will produce prestressed concrete beams and piling for bridges and other heavy construction. The plant is expected to be in operation by April 1. This new concern is an affiliate of the Freyssinet Corporation of New York, N. Y.

The new Holloway-Rinker, Inc., plant, recently opened at Rockledge, Fla., has a capacity of 930 concrete block per day. Ready-mixed concrete is also produced at the plant. Holloway-Rinker operates another plant at Winter Park, Fla.

NEW! MASONRY REINFORCING

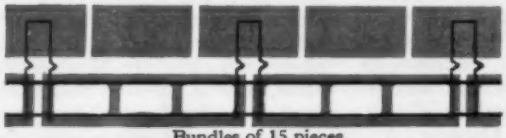
BY MANUFACTURERS OF BLOK-LOK

for increased block sales



NEW! . . . ECONO-LOK* CAVITY

This all flush welded masonry reinforcing relieves horizontal stresses in the back-up wall and ties it firmly to the exterior wall in one operation. Adds lateral strength! Minimizes mortar shrinkage and settlement cracks. Moisture drip U-BAR on 16″ centers eliminates moisture conduction. Available in 12′ lengths of all 3/16″ wire. (9 U-BARS per 12′ pc.)

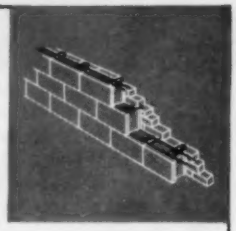


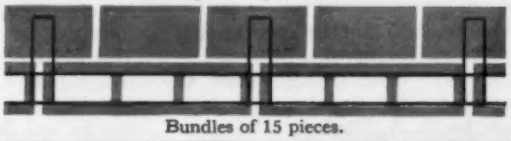
Bundles of 15 pieces.

NEW! . . . ECONO-LOK*

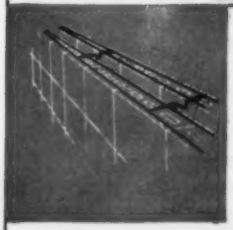
ELIMINATES TROUBLESOME HEADERS

Designed specifically for solid masonry . . . block back-up with brick face. ECONO-LOK'S two heavy lateral rods are the answer to controlling mortar shrinkage and settlement cracks and, at the same time, they tie-in the brick face with ECONO'S U-BAR on 16″ centers. Available in 12′ lengths of all 3/16″ or #9 wire. (9 U-BARS per 12′ pc.)



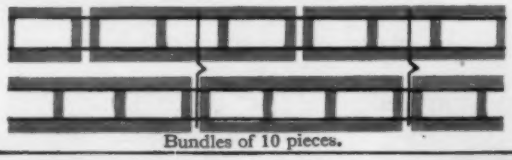


Bundles of 15 pieces.



CAVITY-LOK*

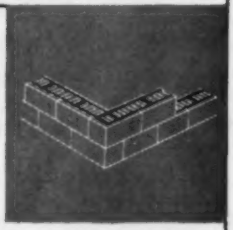
A combination of four lateral heavy steel rods, joined by flush welded cross bars with a positive action moisture drip. With CAVITY-LOK you get the strength of two reinforced masonry walls in one. Available in 10′ lengths with cavity ties on 16″ centers. All 3/16″ wire (8 ties per 10′ pc.) Get all the facts on CAVITY-LOK today!



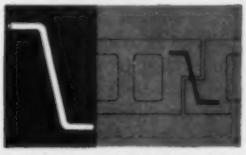
Bundles of 10 pieces.

BLOK-LOK

for solid masonry walls; for brick with block back-up; for block construction. BLOK-LOK flush welded joints give you thin, consistent masonry joints with the utmost structural strength. Block cavities are not obstructed. Shrinkage and settlement cracks are minimized. Available in 10′ or 12′ lengths in various widths, gauges and finishes.

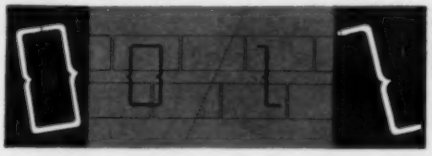


End-capped in bundles of 25 pieces.



CONTROL-TIE

Designed and manufactured specifically to provide positive tie in continuous vertical control joints.



Rectangular Cavity Tie and Z Bar for Cavity Walls

All 3/16″ wire, copper cased, galvanized or hot-dipped galvanized finish.

All products available in various finishes

FAMOUS FLUSH WELD

Columbia University's comparison tests show BLOK-LOK's flush weld is up to 65 times stronger.

PARTITION-LOK*

Used at all intersections with interior bearing and non-bearing partitions.

CORNER-LOK (prefabricated)

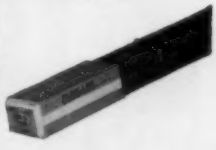
Corners are reinforced simply and economically with CORNER-LOK.

FREE . . . WRITE TODAY!

For . . . New BLOK-LOK & Concrete Block Wall Calculator. Use height and length of the wall and Calculator tells you number of concrete blocks required . . . as well as amount of BLOK-LOK.

PACKAGED FOR CONVENIENT HANDLING

Printed sizes on end of boot for easy identification. Booted ends eliminate "fanning out" and cuts in handling.



AA WIRE PRODUCTS CO.

7211 COTTAGE GROVE AVE., CHICAGO 19, ILL.

Phone: RAdcliffe 3-8313

NAME_____

ADDRESS_____

I am a ☐ BLOCK MFR. ☐ READY-MIX PRODUCER ☐ CONTRACTOR

☐ I am interested in becoming a BLOK-LOK distributor.

☐ Send me literature and prices.

☐ Send me (FREE) new block and BLOK-LOK calculator.

* Pat. Pending. Copyrighted 1957, AA Wire Products Co.

News of Manufacturers

A. G. Walker of The Kent Machine Co. of Cuyahoga Falls, Ohio, passed away recently at the age of 45 after a prolonged illness.

Mr. Walker was a graduate of Kent University. He entered the employ of The Kent Machine Co. in 1936 and for several years past has served in the capacity of chief engineer.

Announcement of the appointment of Max H. Richter Jr., of New Orleans, La., and George Ries of Cleveland, Ohio, as sales engineer, is made by B. A. Tucker, sales manager, Peerless Pump Division, Food Machinery and Chemical Corporation, Los Angeles, Calif.

Mr. Richter has been assigned to handle sales of the company's engineered vertical and horizontal pump lines in Louisiana and Arkansas, and Mr. Ries has a similar assignment for Ohio.

Clyde R. Dean, Jr., director of export sales of Yale Materials Handling Division, The Yale & Towne Manufacturing Company, Philadelphia, Penna., has been promoted to general sales manager. He has spent his entire business career, almost 20 years, in the materials handling industry.

During this time he has been associated with domestic and foreign sales, service activities and sales promotion of industrial lift trucks and hoists. Mr. Dean joined the Yale sales organization in October, 1954.

In addition, Richard H. Marsh has been appointed southern regional sales manager of Yale Materials Handling Division. Previously sales manager of Yale Worksaver and Warehouser sales, Mr. Marsh will now supervise Yale sales and service activities of both industrial lift trucks and hoists in Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee and Texas. His headquarters will be in Atlanta, Ga.

Mr. Marsh has been a member of Yale's plant sales organization in Philadelphia since 1948. He headed the Worksaver and Warehouser sales department for the past two years.

Chain Belt Company, Milwaukee, Wis., announces the acquisition of General Road Machines, Inc., of Niles and Newton Falls, Ohio. General Road Machines manufactures steel forms for concrete road, airport, curb and gutter and sidewalk construction; concrete finishing machines; and other concrete road building equipment.

The products of the General Road Machines acquisition will complement Chain Belt Company's road machinery line and enable them to better serve the country's rapidly-growing highway program.

General Road Machines, Inc., has two plants, one at Niles, Ohio, which serves as a general office and machinery manufacturing plant. The second plant is located at Newton Falls, Ohio, and is used to manufacture road and other forms. The company will be operated as a wholly owned subsidiary for the time being. Donald T. Heltzel, president of General Road Machines, will continue as general manager, and J. J. Marcello, vice-president of General Road Machines, will be sales manager.

General Electric Company, New York, N. Y., has announced the creation of a new operating department geared to meet the demands of a constantly expanding communications market.

The new department will be known as the General Electric Communication Products Department and will absorb functions previously handled by the company's Communication Equipment Section. Products of the new department will include mobile radio, microwave radio relay, radio traffic coordination units, power line carrier equipment, terminal equipment and other communication systems.

Harrison Van Aken, Jr., has been promoted to the position of general manager of the new organization. He previously headed the Communication Equipment Section. Headquarters of the General Electric Communication Products Department are at Electronics Park, Syracuse.

Canadian Clark, Ltd., St. Thomas, Ontario, recently launched a two-day open house to mark the formal opening of its new 52,000 sq. ft. manufacturing plant. Now in production at the plant are three models of its rubber-tired "Michigan" tractor shovels, ranging in capacity from 1 to 2½ cu. yds. Present to inspect the new plant were government officials, Clark distributors and many users of "Michigan" equipment.

Get the Facts on Heavily-Insulated Aluminum Doors
BOOTH 131
Concrete Industries Exposition
February 25 - 28
Kiel Auditorium • St. Louis
Install Standard's heavily-insulated aluminum doors, and you eliminate costly heat and steam losses.
STANDARD DRY KILN COMPANY
P.O. BOX 5708 • INDIANAPOLIS 21, INDIANA

CHAIN BELT

REX

COMPANY

ADJUSTA-WATE

MOTO-MIXERS

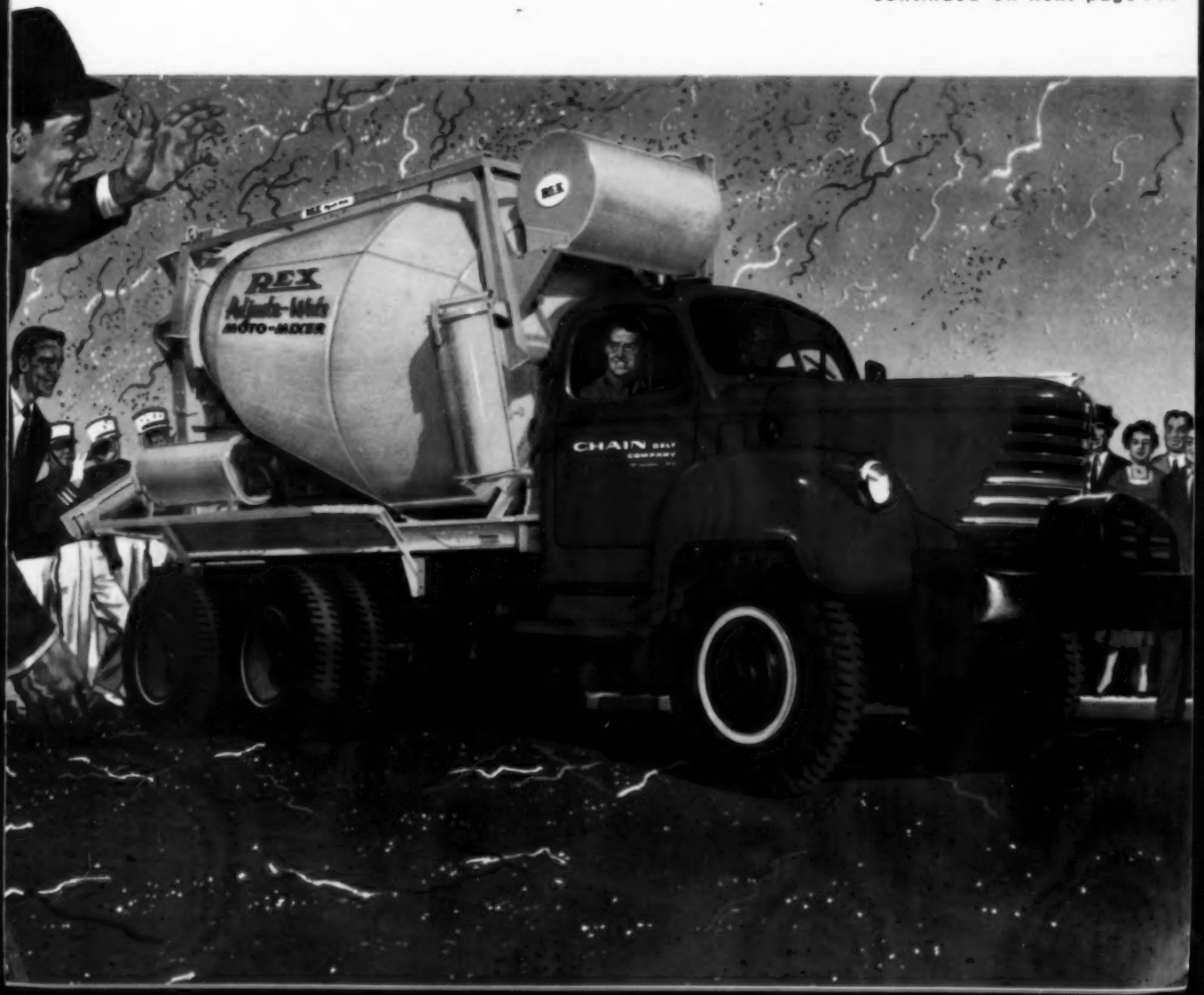
Out in front of the Parade

It's more than a matter of pride. It's a deeply ingrained habit that makes Rex Adjusta-Wate Moto-Mixers the pace setter in truck mixer design. For Rex has the habit of leadership . . . the responsibility for the creative engineering that looks to tomorrow — today!

Today's truck mixers are a far cry from the machines of 10 or 20 years ago — far more efficient, more profitable to operate. And the responsibility for this progress has rested primarily on the shoulders of the leader — Rex! The design . . . the manufacture . . . the testing . . . the burden of introduction of the new and improved has been the price we pay for leadership.

Typical of the progress you expect from the leader is the Rex Front Engine Power Take-Off — Rex FEPTO — an innovation that ranks with the many Rex firsts — chain drum drive, three-point suspension, Adjusta-Wate design principle and others. This is a proven design for, as the leader, we can't afford to take a chance with your pocketbook. It's as far ahead in performance as any of the other Rex innovations that have meant

continued on next page . . .



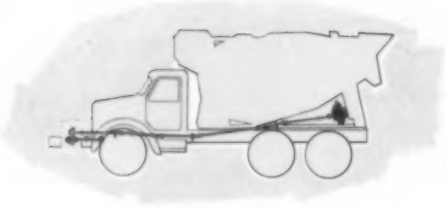
continued from previous page ———

more profitable operation . . . better service to your customers.

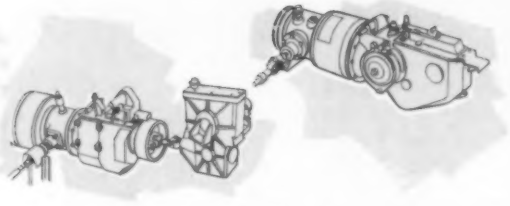
Rex FEPTO is another example of our ability to live up to our promise — "When you want to stay ahead of your competition . . . to give your customers the best in service and quality, look to Rex — for leadership."

And, of course, FEPTO is just one of the many values to be found in Rex Adjusta-Wate Moto-Mixers (R), the leaders in the truck mixer parade. For the rest of this story, see your Rex Distributor or write CHAIN Belt Company, Milwaukee 1, Wisconsin.

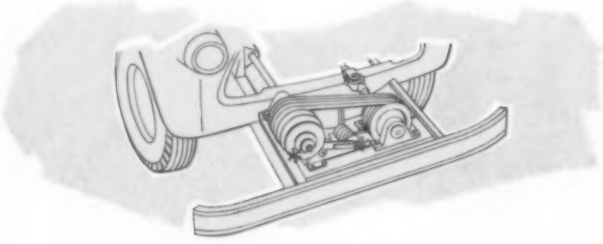
Rex FEPTO advantages are outstanding



Proper drive line location, inside the truck frame on the right, eliminating excessive angles and interference with steering column, brakes and transmission. Out of the way, safe for the operator, protected from damage and dirt.



Transmission option. Your choice of two transmissions. The heavy-duty Rex 202 two-speed transmission proved by 18 years of field service . . . or the new automotive type Rex 101 four-speed reversing transmission.



* **Electric disconnect clutch** permits disengagement of drum and drive lines through a switch in the cab. Ideal for emergencies, cold starting, curb or gutter pouring from cab, prevention of needless wear on return runs.

* **Automatic V-belt tension idler** provides exact belt tension at all times . . . flexes to absorb shocks. Automatic throttle control also protects engine and transmission from shock loads.

CONSTRUCTION REX MACHINERY

Don't penalize your profits . . . Your local Rex Distributor can give you the facts on

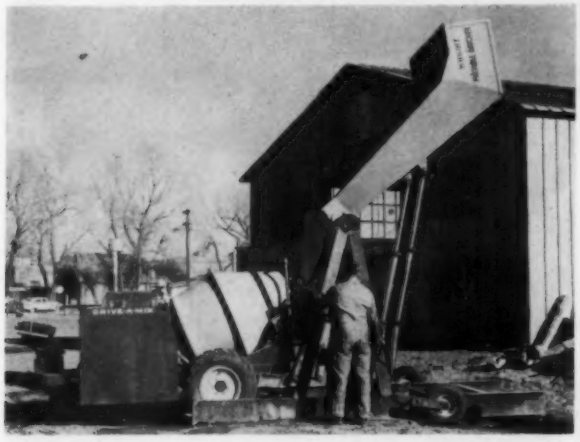
ADJUSTA-WATE MOTO-MIXERS

LEADERSHIP . . . THROUGH CREATIVE ENGINEERING

CHAIN BELT COMPANY 4695 W. Greenfield Ave., Milwaukee 1, Wis.

Litho. in U.S.A.

CM New Machinery and Supplies



• Using Drive-A-Mix, a self-sufficient, mobile concrete mixer manufactured by the Wright Engineering & Supply Company, two men can mix and deliver 20 cu. ft. of concrete every four minutes. The self-propelled mixer is powered by a 26.8-hp. engine, and is easily maneuverable over rough terrain. It has a road speed of 18 m.p.h.

Drive-A-Mix can make a complete 360 deg. turn in a 15-ft. circle. A low center of gravity prevents tipping. Each unit is equipped with a 104-gal. capacity water tank. Since Drive-A-Mix mixes concrete on the job, formulas can be varied on the spot and from batch to batch. The compact mixer is 60 in. high, 57 in. wide, and 10½ ft. long. Its gross weight is only 3,300 lb. A unique tricycle steering design permits tight turns and traveling pours formerly requiring a worker wheeling concrete buggies or wheelbarrows, reducing equipment requirements and labor costs. The portable batcher has a self-contained power unit. **(101)**

• The Stow Manufacturing Company has designed a small, lightweight concrete vibrator with a 1¼-in. diameter head for use in prestressing operations. Known as the "Power Midget," the vibrator is driven by a ½-hp. motor at 12,000 vibrations per minute. The illustration shows the "Power Midget" vibrating a narrow fin section of a prestressed concrete double T slab. Because of its small size and weight, it is ideal for this type of use. **(102)**

FEBRUARY, 1957

MORE INFORMATION PLEASE

THE CONCRETE MANUFACTURER
431 S. DEARBORN ST.
CHICAGO 5, ILLINOIS

Please send more information on items described in editorial columns of this issue, as circled below.

101 102 103 104 105 106 107 108 109 110
111 112 113 114 115 116 117 118 119 120
121 122 123 124

Name_____ Title_____

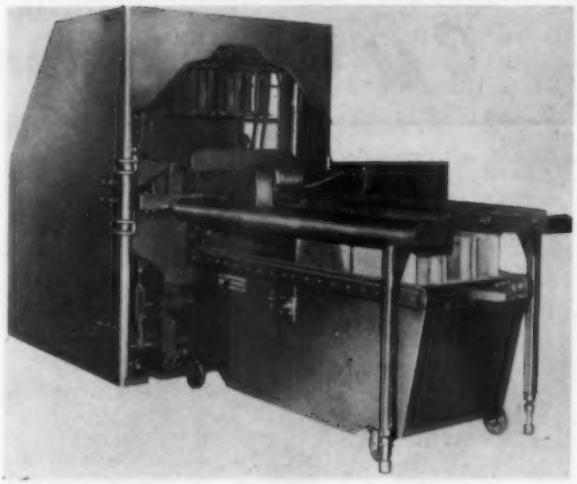
Company_____

Address_____

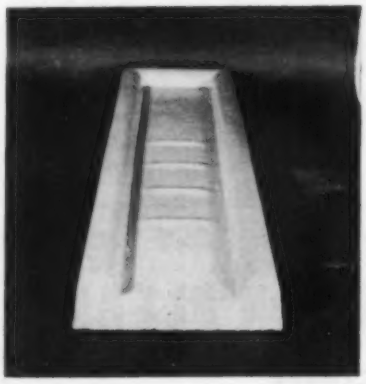
City_____ Zone____ State_____

• Blok-Joint, made by the Carter-Waters Corporation, is a "cross-shaped" rubber extrusion to be used with standard metal sash blocks to form a control joint in concrete masonry walls. Blok-Joint can be used in single block walls, block walls faced with other masonry, cavity walls, and at pilasters or columns. The "cross-shape" permits a quick, secure interlock and adds to the lateral stability of the wall. **(103)**

• A new model Tracto-Lift with a 21 ft. lift is now available from the Ottawa Steel Division, L. A. Young Spring & Wire Corporation. The 21-ft. lift model has been designed for placing palletized masonry materials on high scaffolds and hoisting roofing material to the roofs of one-story buildings. A special concrete bucket is available for handling ready-mixed concrete, mortar, and granular materials. The high lift model includes as standard equipment a sturdy overhead guard, shuttle transmission, and power steering. **(104)**

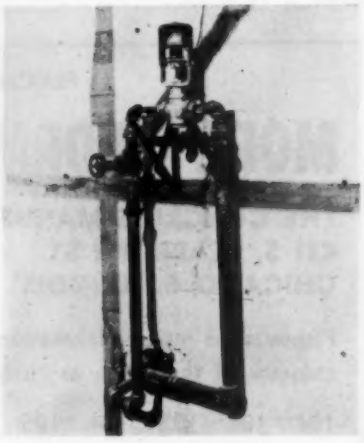


• Model FMC-30, an automatic triple-block machine made by the Fleming Manufacturing Company, has four cams which afford a positive control over the various operations. The front-end pallet feeder and block ejector permit one-man operation. Mounted in a reinforced concrete slab, the vibrator is isolated from the machine, eliminating stresses in the metal due to vibration. The magnetic off-bearer has two forks: the lower fork removes the block from the machine and places it on the rack; the top fork carries empty pallets from the racks back to the machine. The FMC-30 includes a mold to make three 8- by 8- by 16-in. blocks. **(105)**

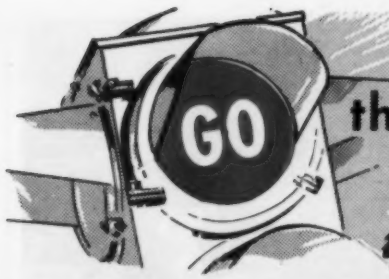


• The R. L. Spillman Company has introduced a new step form as an improvement over the older unit. Ripple-Flo forms measure 36 in. by 11 in. by 3 in. and feature built-in ribs for extra strength and Slo-Flo quality which prevents washouts. **(106)**

• Power units for concrete ready-mixers have been reproportioned by the Hercules Motor Corporation to accommodate its new line of interchangeable gasoline and diesel engines. Eighteen different bore sizes are available in the new line. **(107)**



• This Powers No. 11 self-operating temperature regulator, a product of the Powers Regulator Company, makes kiln control for concrete curing entirely automatic. The regulator consists of a liquid-filled bulb, which mounts on the wall of the kiln; capillary tubing, which runs to the valve assembly on the steam line; and a diaphragm-type valve. A temperature change at the bulb varies the pressure of the volatile liquid inside. Pressure is transmitted through the capillary to a bellows, which opens or closes the valve in a gradual manner, regulating the flow of steam. **(108)**



ELECTRONIC MARK X H_2O METER

the SURE WAY . . . to accurate determination of sand moisture

- CONTINUOUS DIRECT READING
- INDISPENSABLE FOR READY MIX INVALUABLE FOR BLOCK PRODUCERS
- SMALL COMPACT DESIGN
- SIMPLE INSTALLATION NO SKILL REQUIRED
- $178 DELIVERED ANYWHERE IN THE UNITED STATES

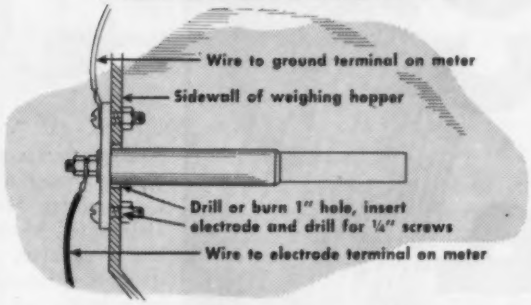
No more "road blocks" between the concrete producer and RELIABLE data on sand moisture content!

Employing the most advanced engineering ever offered in a moisture meter at any price, the Mark X H_2O Meter uses the field proven alternating current bridge in its measuring circuit.

Guaranteed accurate and maintenance free, the Mark X insures controlled uniform concrete — offers profit protection for the producer, and product satisfaction for the customer!

Install this useful tool and you're on the "open road" to production of controlled concrete and premium concrete products!

"THE STANDARD OF THE CONCRETE INDUSTRY"


Wire to ground terminal on meter
Sidewall of weighing hopper
Drill or burn 1" hole, insert
electrode and drill for ¼" screws
Wire to electrode terminal on meter

Install electrode as above. Locate in position where it will be covered by sand when batching. Locate meter anyplace convenient to the batcher's hand and view. Plug cord into 110 volt outlet — the job is done.

All installation materials and detailed instructions included with shipment.

NATIONAL READY MIXED CONCRETE ASSOCIATION NRMCA

SARASOTA ENGINEERING COMPANY, INC.

designers *manufacturers* *consultants*

P.O. Box 1329, Sarasota, Florida • Cable address "Sarenco"

PURCHASE ORDER TO:

COMPANY NAME

ADDRESS

BY TITLE

FOR ONE MARK X H_2O METER
PRICE $178.00 DELIVERED
DELIVER AT ONCE BEST WAY
TERMS — 2% 10 DAYS; NET 30 DAYS

CALIBRATED FOR: ☐ SILICA SAND ☐ LIMESTONE SCREENINGS

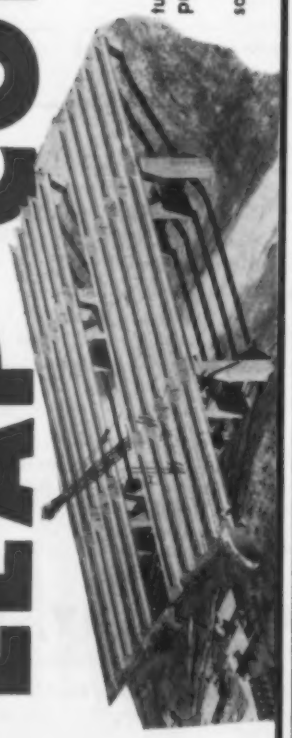
DATE

LEAP® CONCRETE

FRANCHISES MEAN GREATER PROFITS ON TURNPIKE JOBS!

Shown at Left: Bridge beams for Florida Turnpike manufactured by R. H. Wright & Son, a LEAP FRANCHISED prestressed products manufacturer.

You too can share in these profits - - Franchises available in some localities - write LEAP Concrete, Inc., Lakeland, Fla.



FREE!

LEAP Concrete, Inc. P. O. Box 1053
Dept. A-13, Lakeland, Florida

Send information about LEAP Prestressed Products; Franchise ☐, Double Tee ☐, Joists ☐, Beams ☐, Piling ☐

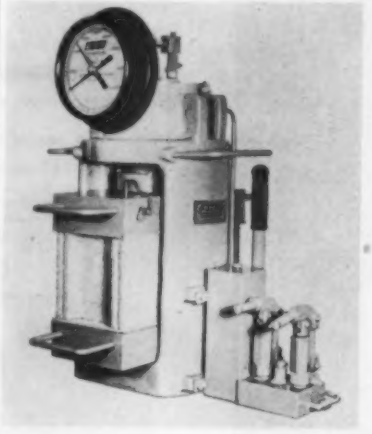
NAME _____

ADDRESS _____

CITY _____ STATE _____

I am an: Architect ☐, Engineer ☐, Contractor ☐ We are interested in a LEAP FRANCHISE ☐

• Dart Model 10SL "Junior Workhorse," companion to Dart's Model 25SL, features box girder frame, 150 hp. diesel engine, heavy off-the-highway-type cab, and a 6.3-cu. yd. rock service body. Optional equipment includes a three-stage torque converter. The "Junior Workhorse," is useful in hauling material to the ready-mix plant. **(109)**

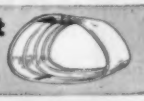


• Forney's Incorporated has added a new model to its line of testers for concrete blocks and cylinders. Designated Model FT-26, the tester has a capacity of 100 tons. It is designed primarily for testing concrete blocks up to 8 in. by 8 in. by 16 in. Optional extra equipment is available for testing 2 in. by 2 in. and 6 in. by 6 in. cubes in compression and beams up to 6 in. by 6 in. by 40 in. in flexure. Calibration is said to be accurate to within ¼ of 1 percent. **(110)**

• Powerfilm MRC, a new materials release coating that resists the sticking of concrete, lime, and other materials to equipment, has been introduced by The Thomas Company. Powerfilm MRC is effective on concrete forms, ready-mix trucks, conveyor belting, interiors of front-end loading equipment, etc. After applying it dries quickly to form a thin, waxy coating, and polishes to a high luster. Powerfilm MRC contains a rust preventive additive, and leaves no oil stain on concrete or other surfaces. **(111)**

No Matter What SIZE...

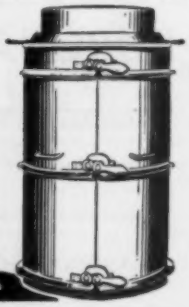
No Matter What SHAPE...



QUINN CONCRETE PIPE FORMS

Set The STANDARD For Producing Quality Pipe!

Over 50 years of experience go into the production of every Quinn Concrete Pipe Form. That's why the Quinn Heavy Duty form is recognized as the STANDARD the world over for producing quality concrete pipe at the lowest cost. Used in making pipe by vibration, spading, or tamping. Sizes for pipe 10" to 120" and larger. Tongue and groove (as shown) or bell end pipe in any length desired. No matter what size, shape, or length pipe you need, there's a Quinn pipe form made to fit your requirements. Write today for our FREE catalog and estimates.



Also Manufacturers of QUINN CONCRETE PIPE MACHINES

Quinn WIRE & IRON WORKS BOONE, IOWA

NOW!

Get the CONCRETE FACTS on Powdered PLASTICIZER!

1. Is it necessary?	YES!
2. Does it make a better looking block?	YES!
3. Does it SAVE wear and tear on equipment?	YES!
4. Do most better brands do the Job?	YES!

WHAT'S THE BIG DIFFERENCE?

COST!

FORRER'S XL-100 is 32¢ a pound. With Forrer's you use *Only 1* tablespoon per sack of cement. 128 tablespoons/lb. = ¼ cent per bag of cement.

BRAND "B" Sells at the same price of 32¢ lb. — Yet there are only 64 tablespoons per pound. Therefore your cost is ½¢ per bag or double the cost of XL-100.

BRAND "C" You pay 17¢ per pound. BUT you need 1 oz. per Bag or about 1¢ per Bag. This is 4 times the cost of Forrer's XL-100.

BRAND "D" Is 15¢ per pound — Like Brand "C" it COSTS you close to 1¢ per Bag, or actually 4 times the cost of XL-100.

Look at the Facts! Then Decide on Forrer's XL-100. See Why . . .

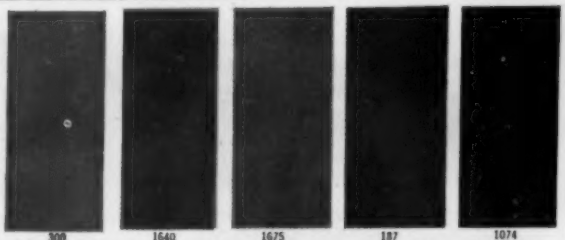
"The Best — Costs You Less!"

Note: Forrer's operates *only* through legitimate concrete supply agencies — never through grocery or super markets.

COMPARE!
SEE THE AMAZING DIFFERENCE!
Forrer's XL-100 is a dry hydrated powder with wetting and dispersing agents. It's easy to use and economical too—costs but ¼¢ per bag. Free sample on request.

Forrer's
PRODUCTS FOR MASONRY
SINCE 1926

Division of
SPRAY-O-BOND CO.
2225 N. Humboldt Ave.
Milwaukee 12, Wisconsin



A guide for choosing concrete colors

For producers of split blocks, patio blocks, concrete blocks and other colored concrete products.

Manufacturers of colored concrete products agree . . . *The pigments they use must have these 3 important qualities:*

1. A high degree of tinting strength when added to the mix
2. Color uniformity year in, year out
3. The ability to incorporate easily

Manufacturers also require a pigments supplier whose technical department is capable and cooperative, whose shipping service is prompt and dependable.

Point for point, REICHARD-COULSTON quality-controlled pigments and dependable service meet *all* these requirements!

The shades shown above are just 5 of the many concrete colors manufactured by REICHARD-COULSTON. Included are yellows, buffs, maroons, grays, reds.

For a free color card, fill in and mail the coupon. Act now.

GENERAL RECOMMENDATIONS: PASTELS (*Split blocks and similar products*), 2-4 lbs. for each bag of cement. DEEP SHADES (*Patio blocks, concrete blocks, etc.*), 6-8 lbs. for each bag of cement.

Reichard-Coulston, Inc.

15 EAST 26th STREET, NEW YORK 10, N. Y.

Warehouses in principal cities; factory: Bethlehem, Pa.
Over a century of manufacturing and service

Natural IRON OXIDE PIGMENTS *Synthetic*

REICHARD-COULSTON, Inc. CM-27
15 East 26th St., N. Y. C. 10

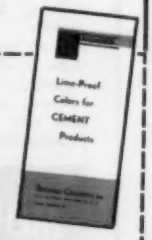
Gentlemen: Please send me a free card of REICHARD-COULSTON concrete colors.

My name_____ Title_____

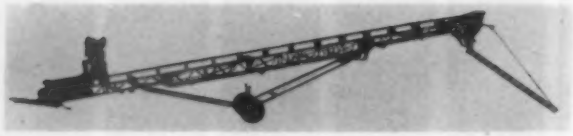
Company_____

Address_____

City_____ Zone____ State_____



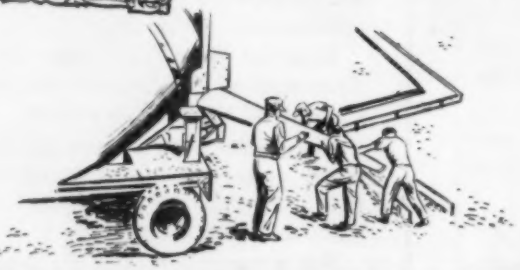
Visit us at the
NATIONAL CONCRETE MASONRY ASSOCIATION EXPOSITION
February 25-28, Hotel Jefferson, St. Louis, Mo.
BOOTH No. 98



• Model No. 618B, a 40 ft. portable concrete conveyor, has been introduced by the Fairfield Engineering Company. This model features a concrete swiveling chute, a belt wiper, and a concrete hopper. It can be obtained with head end control for starting and stopping the belt. The belt is 18 in. wide and runs on triple troughing type idlers. A self-cleaning foot pulley is located at the foot end. Capacity varies with the slump of concrete used and discharge heights. At a discharge height of 16 ft., 24 cu. yd. of concrete per hour can be poured. The unit can be raised to a height of 26 ft. Model 618B, useful in pouring from ready-mix trucks to forms, reduces the labor force and consequently the cost of production. **(112)**

Remember way back when?

WHY DELIVER CONCRETE WITH COSTLY, OUT-OF-DATE METHODS?



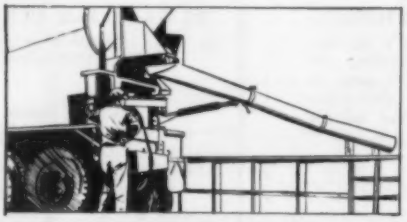
NOW...

MONARCH DYNA-CHUTE

SAVES TIME, COSTS— INCREASES PROFITS

THE MODERN WAY

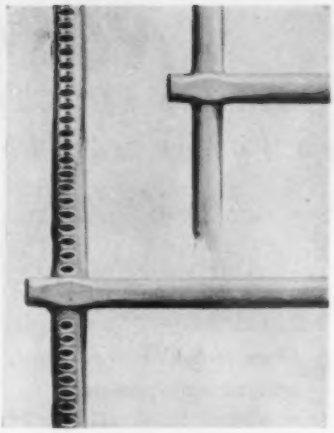
Monarch DYNA-CHUTE Hydraulic Controls position the discharge chute on Ready Mix trucks in 8 seconds . . . automatically! Just a flick of the control handle — the chute is lifted, held, or lowered instantly without effort. Saves time, reduces injury, pays for itself, load after load. Send for free folder and name of nearest dealer.



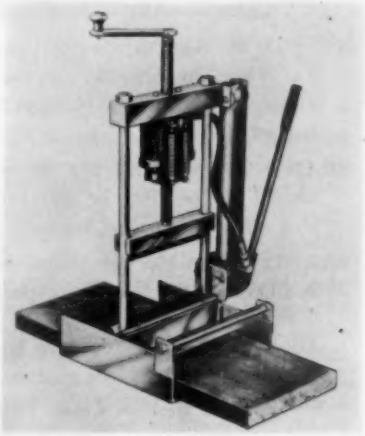
SEND FOR FREE FOLDER

MONARCH ROAD MACHINERY CO 1856 100 1956

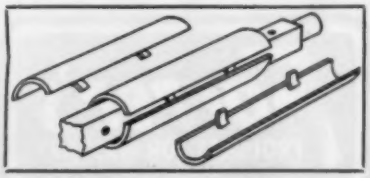
1331-F MICHIGAN ST., N.E. — GRAND RAPIDS 3, MICHIGAN



• Blok-Lok masonry wall reinforcements with flush-welded joints assure small masonry joints, minimum job breakage, maximum structural strength, and no obstruction to mechanical trades. Available from A A Wire Products Company either plain or deformed, they are cold drawn high-tensile wire with galvanized wire, hot-dipped galvanized wire, hot-dipped galvanized, and brite basic finishes. **(113)**

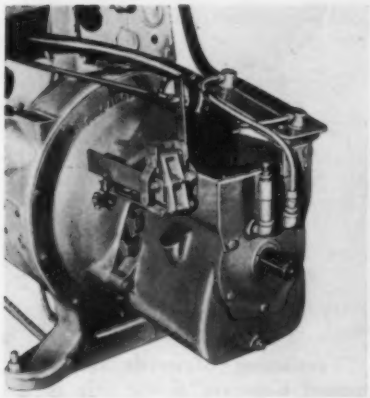


• A new hydraulic masonry cutter which cuts concrete block on a straight line quickly without crumbling or tearing the materials has been introduced by the Tru-Split Tool Company. The machine is adjustable to take any size material up to 8½ in. by 10 in. The two-piece unit weighs only 110 lb. and is easily portable. **(114)**



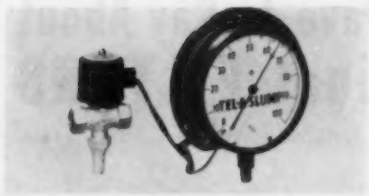
• No. 2596 mixer shaft sleeves, made by the Bergen Machine & Tool Com-

pany, Inc., protect blade shafts in 50 cu. ft. mixers against abrasion caused by the continuous tumbling of aggregate. The wear-saving sleeves come in half sections, complete with tabs. A pair can be tuck-welded in a matter of minutes to form an efficient protective sheath. Four pieces are required per mixer. (115)

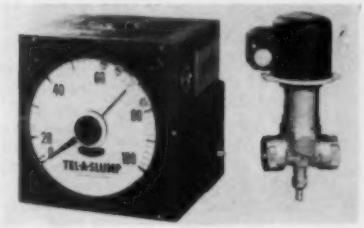


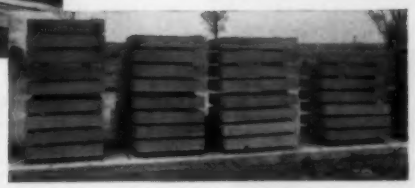
• The Funk Aircraft Company has developed a new torque converter transmission which features no-shift reversing. A single throttle lever changes both the direction and speed of travel. Moving the lever from the neutral position engages the hydraulically-operated clutch; moving the lever forward or backward controls speed and direction. The Revers-O-Matic drive is adaptable to equipment with engines up to 250 cu. in. displacement. (116)

• A new line of fast charging and discharging "F" model truck mixers has been announced by The Jaeger Machine Company. The rear drum cradle is of the open-type design to prevent build-up of material. The drum rollers are fully enclosed with grout-proof bearings. A lighter, more accessible chute assembly is also featured. The 6½ cu. yd. model is illustrated. (117)



• According to the Concrete Controls Corporation, the manufacturer, Dial-A-Matic Tel-A-Slumps for engine-driven mixers (above) and electric mixers (right) automatically turn out concrete of the same slump regardless of changes in the moisture content of the aggregates or other changeable factors. The Tel-A-Slump indicates to a solenoid-operated water valve when to adjust the mix. Water is then added to the mix until the concrete is at the right slump. Then the water is automatically shut off. (118)





☆

photos of PreCaster in plant of Schuster Coal Company Indianapolis and lintel inventory in yard

the money-maker

lintels 4 times faster

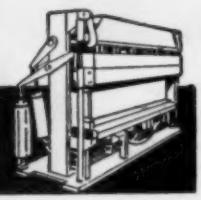
• Mr. Charles W. Braughton, proprietor of Schuster Coal Company, writes:

• "We have found that we can make as many lintels on the *PreCaster* as we wish per day, with no trouble at all. We can now make four (4) times as many lintels per day, with two (2) men, than was ever possible before with the help of many men."

• "Our customers especially like the lintels from the *PreCaster* because they are truly square and the texture is much finer. We are making a better lintel on the *PreCaster*. So, it is *always in demand!*"

• If *"specials"* are a problem at your plant . . . if you are turning down business because your equipment is not flexible . . . then you certainly ought to take a look at what *PreCaster* can do for you. Write today to PreCaster Inc., 5217 Beech Street, Cincinnati 17, Ohio.

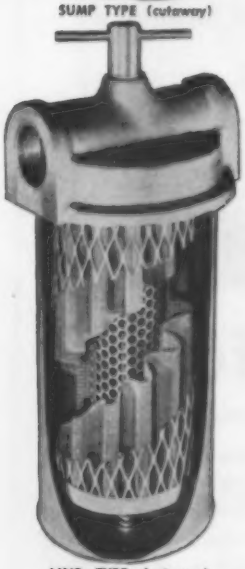
You are cordially invited to see the PreCaster at Booth 44, NCMA, St. Louis, February 25-28!



PRECASTER

Here's What Users Have to Say About MARVEL Synclinal FILTERS

SUMP TYPE (cutaway)



LINE TYPE (cutaway)

U. S. STEEL Co., Irvin Works Three-Stand Cold Reduction Mill—

"Marvel Synclinal Filters are a part of the mill's main hydraulic system which operates Coil Cradle as well as other hydraulic machines".

JONES & LAUGHLIN STEEL CORP., Aliquippa Works—"Marvel Synclinal Filters proved their effectiveness when one of the motors on the hydrostatic pipe testers broke down. A brass fitting was chewed up and jagged pieces of brass were carried into the oil stream. Any small piece of brass could also have caused a great deal of damage to the expensive equipment. However, when the unit was inspected, it was found that all metal particles had been filtered out by the Marvel Synclinal Filters and no damage had been done to the equipment nor was there any loss in operating time. Two filters are installed on each circuit so that one can serve as a by-pass while the other is being cleaned. Although it takes only about fifteen minutes to clean the monel filter insert, even this short interruption in production could be costly in an operation of this size".

MANY OTHERS REPORTING SIMILAR RESULTS ARE NOW SPECIFYING MARVEL SYNCLINAL FILTERS ON ALL NEW HYDRAULIC EQUIPMENT—AND STANDARDIZING WITH MARVEL SYNCLINAL FILTERS ON ALL EXISTING EQUIPMENT.

For Dependable Protection on All Hydraulic and Other Low Pressure Circulating Systems —Investigate MARVEL SYNCLINAL FILTERS

OVER 750
Original Equipment Manufacturers Install Them as Standard Equipment!

They Meet J. I. C. Standards

FILTERS FOR FIRE-RESISTANT HYDRAULIC FLUIDS

Marvel's most recent development is a filter for the efficient filtration of all types of fire-resistant hydraulic fluids.

WATER FILTERS

Both sump and line type filters have been adapted for use in all water filtering applications. No changes have been made in the basic, balanced synclinal design.

A SIZE FOR EVERY NEED

Available for sump or line installation in capacities from 5 to 100 G.P.M. Greater capacities may be obtained by multiple installation (as described in catalog). Choice of Monel mesh sizes range from coarse 30 to fine 200.

IMMEDIATE DELIVERY!

As in the past, Marvel continues to offer Immediate Delivery!

MARVEL ENGINEERING COMPANY
7227 N. Hamlin Ave., Chicago 45, Ill.
Phone: JUniper 8-6023

Catalogs containing complete data available on request

Without obligation please send me complete data on Marvel Synclinal Filters, as indicated—

- ☐ Catalog #107 — For Hydraulic Oils, Coolants, Lubricants
- ☐ Catalog # 200—For Fire-resistant Hydraulic Fluids (Aqueous Base)
- ☐ Catalog # 400—For Fire-resistant Hydraulic Fluids (Synthetic)
- ☐ Catalog # 301—For Water

Name _____

Company _____

Address _____

City _____

State _____ PQ-2

New Literature

Car-type Style "S" push-button electric elevators for one to four passengers are covered in a catalog published by *The J. B. Ehrsam & Sons Manufacturing Company.* Designed for safe operation and simple installation, the elevators conform to the American Standard Safety Code requirements and all local and state codes. **(119)**

The Steel-Tite reglet, a one-piece self-sealed reglet for use in tilt-up and poured concrete construction, is described and illustrated in literature available from the manufacturer, *White Metal Products, Inc.* **(120)**

"Tensioning Materials for Prestressed Concrete" is the title of a catalog published by *John A. Roebling's Sons Corporation.* Tables, diagrams, photographs, and informative data describe strands for pretensioned and post-tensioned design and anchor fittings for post-tensioned design, and Roebling high-strength prestressed concrete wire. **(121)**

A bulk storage unit for cement and other free-flowing materials is described in a folder offered by the *Andrews Machine Company.* The unit has a hopper bottom with a swing control gate valve for more effective discharge control. **(122)**

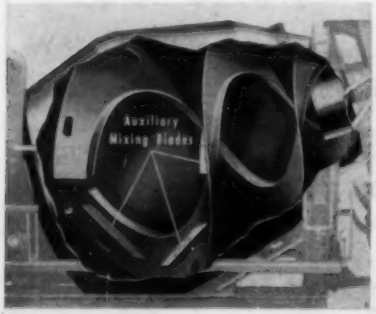
Suspension hopper scales for batching and proportioning are discussed in a folder released by the manufacturer, the *Cardinal Scale Manufacturing Company.* Installation photos are included in addition to a detailed description of the design and operation. **(123)**

A catalog of Blok-Lok and Cavity-Lok masonry wall reinforcement with flush welded joints is offered by the *A A Wire Products Company.* Diagrams, specifications, and descriptions of the different types are included. **(124)**

Fast...thorough MIXING pays off two ways

A thorough mix being discharged fast into buckets through the Westinghouse fold-over chute. Chute can be used in 5, 8 or 12 ft. lengths or can be swung away for direct discharge by simply pulling two pins . . . Three of 11 Westinghouse mixers in fleet of Ryan Ready Mix Concrete Co., Brooklyn and Long Island, N. Y.

This is the Westinghouse mixing drum with deep spirals plus 6 auxiliary mixing blades, each 36" x 7". The extra blades produce a criss-cross, extra-mixing action which results in a thorough, uniform mix in jig time.



On-the-job-mixing, required on many jobs, injects a definite "mixing time" element into your trip cycles. The faster your mixers can produce the proper mix the quicker they can get back to the plant for the next load . . . Because of their "double-action" mixing blades Westinghouse mixers cut this time to a minimum. On short haul mixed-in-transit trips Westinghouse mixers are ready to pour on arrival where others would have to stand and complete the mixing.

At the same time Westinghouse mixers produce a thorough, uniform mix which pays off in customer satisfaction and that builds up repeat business.

Big operator likes Westinghouse for other reasons too

The job pictured here is that of pouring footings on a state highway job at Freeport, Long Island, N. Y., where four 6½ yard Westinghouse machines, mixing on the job, maintained a constant pour into buckets for Ryan Ready Mix Concrete Co. Ryan, which operates 120 mixers out of their three plants (1 in Brooklyn and 2 on Long Island) introduced 11 Westinghouse machines into their fleet early in 1956. Of their performance Mr. Edward Ryan, Secretary and manager of operations, says, "Our Westinghouse machines are working out very satisfactorily—they load, mix and discharge well. We like their simple design and sturdy construction. They are easy to operate and service. The enclosed-gear drum drive and ball and socket drum mounting appeal to us. Over the lifetime of the machines they should reduce our maintenance costs considerably."

Take a look at Westinghouse

Westinghouse mixers are growing in popularity, steadily, with those operators who *know* them. They're available in 4½ to 6½ sizes with the equipment you require. Before buying another mixer consider the Westinghouse. Write today for new 1957 catalog which highly illustrates and describes Westinghouse advantages or see your local dealer.

TRANSIT WESTINGHOUSE MIXER

WESTINGHOUSE TRANSIT MIXER DIVISION
LeTourneau-Westinghouse Company, Indianapolis 6, Indiana
Member of National Ready Mixed Concrete Association

CUT CONCRETE BLOCK
FASTER WITH THE ALL-NEW

Clipper
"SAILS RIGHT THRU"

SUPERMATIC
MASONRY SAW
with STA-LEVEL HEAD
and
HI-LO CONTROL WHEEL

The Best High-Production Saw Ever Built! HI-LO Control Wheel Automatically Keeps STA-LEVEL Cutting Head in Level Position . . Ready to Cut . . at any height, from 0" to 17" . . . NO ADJUSTMENTS TO MAKE! SUPERMATIC is SIMPLE-RUGGED -DEPENDABLE

Here's a NEW Clipper BOND the CD-7245-3

. . best for all HEAVY and LIGHT-WEIGHT BLOCK. Yes — here's a Clipper Diamond Blade that will out-cut, out-last and out-perform any blade ever developed for block, stone and basic refractories — including the average so-called "tungsten-carbide" blades. AND — for all saws — every material — you can choose from the world's largest selection and widest range of Diamond, Break-Resistant and Abrasive Blades. Call your Factory Trained Representative for Same Day Shipment.

Clipper also builds the famous "Select-A-Notch" Masonry Saw — the Saw that one man can adjust from his cutting position. priced from **$335**

Genuine Clipper Products Sold Only Direct — Immediate Shipment From Factory Branches Coast To Coast

CLIPPER MANUFACTURING CO.
2806 WARWICK • KANSAS CITY 8, MO. 232X

- ☐ Ship a SUPERMATIC Masonry Saw on FREE TRIAL
- ☐ Send FREE literature on Clipper Super-Matic and Select-A-Notch Masonry Saws
- ☐ Ship 1 14" CD-7245-3 Diamond Blade at $209.00
- ☐ Send information on Clipper Premium Quality Diamond, Break-Resistant and Abrasive Blades
- ☐ Send my Clipper Factory Trained Representative to see me

NAME_____

ADDRESS_____

CITY, STATE_____

MACE SINTERING HEARTHS

No. 3
4 compt.
Mace
Sintering
Hearth

For Production of
LIGHT WEIGHT AGGREGATE
from clays, shale & fly ash

Standard Sizes	Nominal Capacity—L. W. A.
No. 2 — 2 compt.	50 Cu. Yds.
No. 3 — 4 compt.	100 Cu. Yds.
No. 4 — 6 compt.	150 Cu. Yds.
No. 5 — 9 compt.	225 Cu. Yds.
No. 6 — 12 compt.	300 Cu. Yds.

Our Testing Plant is at your service
For further information & literature write

THE MACE COMPANY
2757 Blake St., Denver 5, Colo.

ULTRAMARINE BLUE
No. 4156

- Especially manufactured for use in Concrete Products
- Cobalt Shade
- Readily Available
- Ask for Special Bulletin

When at the NCMA Exposition in St. Louis, visit us at our booth (No. 18)

FRANK D. DAVIS COMPANY
2704 Santa Fe Ave., Los Angeles 58, Calif.
Meadow Road, Nixon, New Jersey

♫ "Meet me in St. Louis" ♫♪

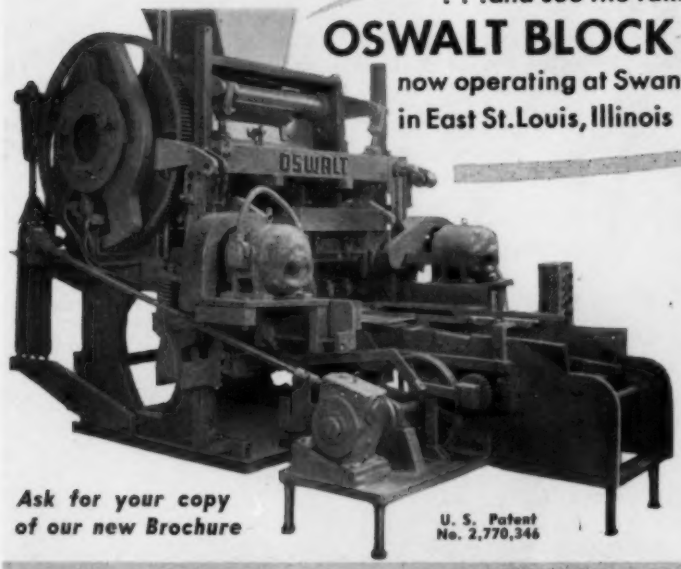
when you're at the NCMA Convention

OSWALT will be in BOOTH 101 Feb. 25-28

. . . and see the famous new

OSWALT BLOCK MACHINE

now operating at Swansea Concrete Products in East St. Louis, Illinois



Ask for your copy of our new Brochure

U. S. Patent No. 2,770,346

We invite you to visit us at the Show, and get the facts about these Oswalt-engineered features:—

Electronic Controls for block uniformity in height, density and quality.

Patented Shock-Free Block Ejector and Front-End Pallet Feeder.

Improved System of Vibration at higher speed per cycle.

Maximum Stability of Construction with relaxed operation.

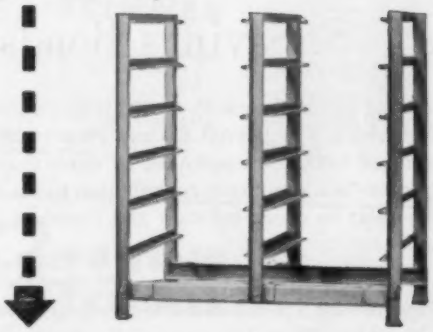
OSWALT BLOCK MACHINE INSTALLATIONS

are setting new records in high production without sacrifice of quality . . . economy of operation and maintenance . . . increased plant efficiency and profits.

OSWALT ENGINEERING SERVICE CORP. 1335 CIRCLE AVENUE • FOREST PARK, ILL.
Phones: ESterbrook 8-4664 (Chicago) FOrest 6-2798 (Suburban)

CHASE BLOCK RACKS, PLAIN STEEL PALLETS

Your best buy



Here's why . . . Standard style or specially designed, Chase racks meet your requirements. They're shipped painted and knocked down—assembly is easy—no special tools or welding needed. Chase experience means low prices and years of dependable service. Check Chase prices.

Chase FOUNDRY & MANUFACTURING CO.
3300 PARSONS AVENUE • COLUMBUS 7, OHIO

Stanzoil® Pacemakers

Neoprene Coated Flannel Gloves

No. 140

Designed to fit working hands. Roomy knuckles for easier finger movement. Seams located off work areas. Of long wearing Neoprene compounded to maximum flexibility and abrasion resistance. Knit wrist, 12", 14½" and 18" gauntlet styles available. Let PIONEER help you select proper gloves for your job from the complete PIONEER line.

The PIONEER Rubber Co.
Attn: Hand Protection Clinic
271 Tiffin Road
Willard, Ohio, U.S.A. (140)

Please send me:

The name of my nearest PIONEER Glove Distributor.

1956-57 PIONEER Industrial Glove Catalog.

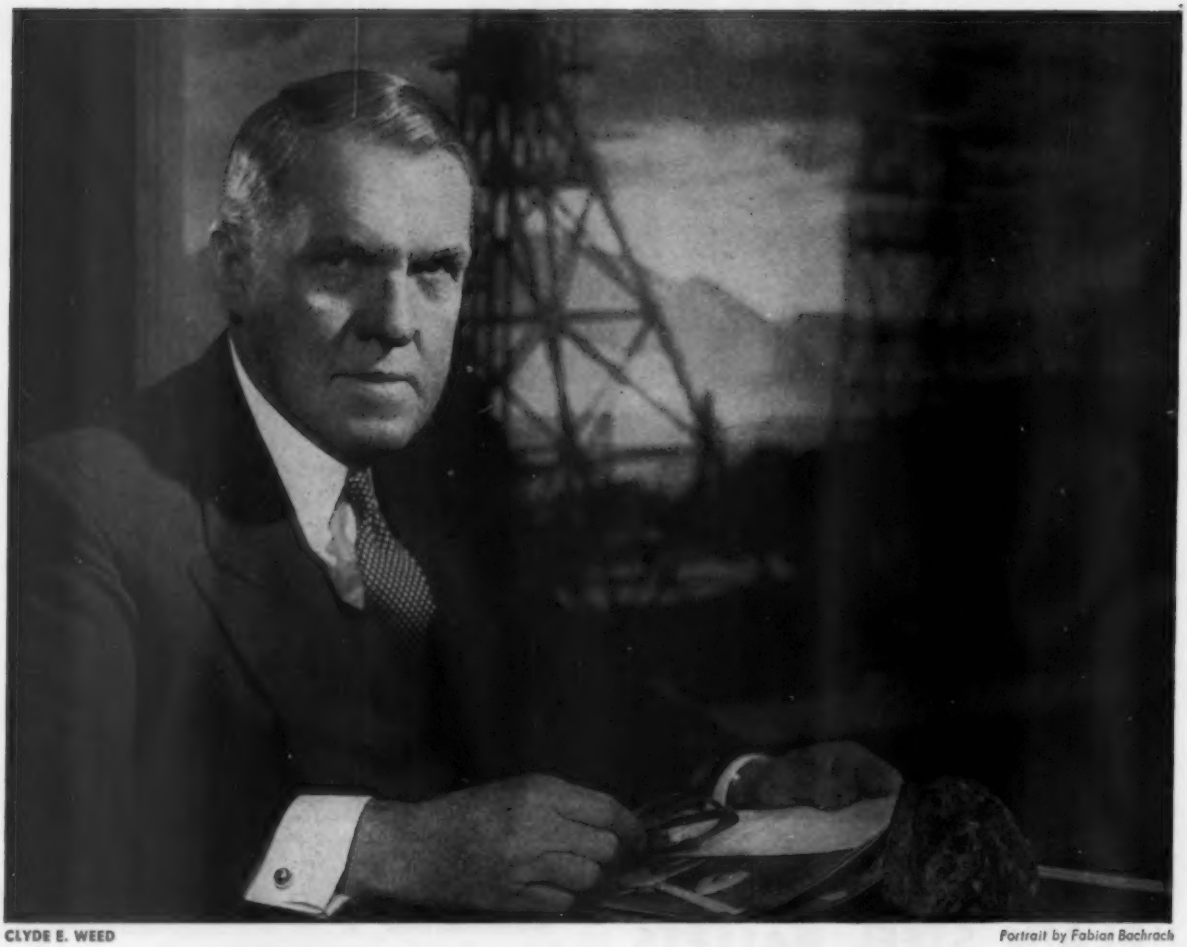
Your glove recommendation for job described in enclosed letter.

Firm_____

Address_____

City_____ Zone_____ State_____

Signed_____



CLYDE E. WEED

Portrait by Fabian Bachrach

"22,514 Anaconda Employees Are Buying U. S. Savings Bonds

"In October, 1955, only 34% (11,140) of the nearly 33,000 Anaconda organization employees in this country were buying U. S. Savings Bonds through the Payroll Savings Plan.

"Late in 1955, we conducted a simple person-to-person canvass which put a Payroll Savings Application Blank in the hands of every employee. There was no pressure, no special promotion – just the Application Blank. Our employees did the rest.

"Recently, our records showed that 22,514 of our men and women—69%—are now Payroll Savers. Every new employee is given a Payroll Savings Application Blank and an opportunity to join with his fellow workers in building personal security through systematic thrift.

"We believe The Payroll Savings Plan—with an enrollment of 8,000,000 employees of more than 40,000 companies—is a significant contribution to the Government's effort to check inflation and maintain a sound dollar."

CLYDE E. WEED, *President*
The Anaconda Company

Why not take a *personal* interest in *your* Payroll Savings Plan? Your State Director will be glad to show you how to install the Payroll Savings Plan or revitalize an existing plan. Phone, wire or write, today, to Savings Bond Division, U. S. Treasury Department, Washington, D. C.

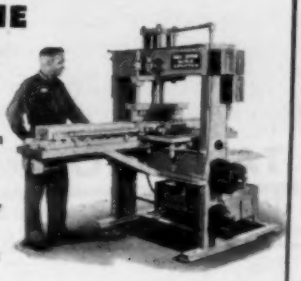
The United States Government does not pay for this advertising. The Treasury Department thanks, for their patriotic donation, the Advertising Council and

PIT & QUARRY PUBLICATIONS, INC.

3 profit makers ...in the complete BESSER line of BLOCK SPLITTERS

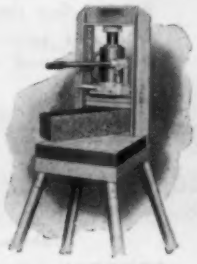
• Today — the trend toward split block is strong. Architects, builders and owners want this beautiful, modern "quarried stone" effect that is so ideal for all types of structures. Why not cash in on this tremendous market. Get the tools required . . . splitters and trimmers. The Besser Company, makers of the famous VIBRAPAC block machine, carries a complete line. Write today for literature.

1 BES-STONE SPLITTER



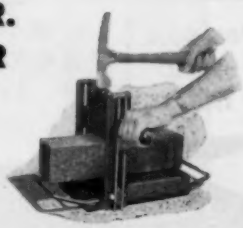
Splits block in a straight line, with speed, precision and safety. No cull block. Easily adjustable for splitting various heights. Holds block automatically in correct position. Finished split block is removed from under splitting knife by incoming block.

2 PONY BLOCK TRIMMER



Indispensable tool for on the job. Trims off the end of any block up to 8" by hand operated, hydraulic pump. Capacity 12 tons. Legs easily removable. Compact, lightweight, easily portable.

3 PONY JR. TRIMMER



Handy for trimming ends of block, brick or stone. Merely strike blade holder with heavy hammer. Cuts square or at any angle. Easily lifted by mason to scaffold.

BESSER COMPANY

Complete Equipment for Concrete Block Plants

ALPENA, MICHIGAN, U.S.A.

Production Schedules SLOWING DOWN?

Speed winter production of concrete products with SOLVAY CALCIUM CHLORIDE

This winter you can *double* output of poured products . . . cut steam curing of pressed and tamped products in *half* . . . handle *twice* your usual volume in your present storage space. How? By adding Solvay Calcium Chloride to your mix. It doubles the early strength —speeds strength development without changing normal chemical action of Portland Cement.

SOLVAY

Clip coupon for helpful, informative booklet—*"How To Get Better Concrete Products At Lower Cost"*

Allied Chemical

SOLVAY PROCESS DIVISION
ALLIED CHEMICAL & DYE CORPORATION
61 Broadway, New York 6, N. Y.

Please send me without cost:
"How To Get Better Concrete Products at Lower Cost"

Name_____

Position_____

Company_____

Address_____

City_____ Zone_____ State_____

CM-2

A 6-106-½P

Get Into Profitable Precast Business ...without making a big investment

It's not necessary to invest money in concrete beds, expensive equipment and plant facilities to manufacture prestressed double tee slabs. A big sales potential is for span ranges of 20 to 40 feet, for which prestressing is not needed—for which precast members are most advantageous.

Low-cost, portable Atlas Cambered Steel Forms enable you to quickly and simply precast your slabs with lightweight concrete. A small investment puts you in a business with a tremendous market.

Get the story.

Consult Us Before Buying Forms for Prestressed or Precast Concrete

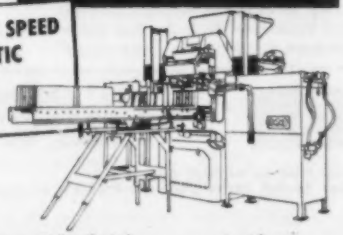
IRVINGTON FORM & TANK CORPORATION

Manufacturers of Forms for Prestressed and Precast Concrete
Dept. CM, 20 Vesey Street New York 7, N. Y.

NOW! PRESTO BLOCK

with True Air Cavity, Moisture, Sound and Climatic Insulation Built-in . . .

PRODUCED BY HIGH SPEED . . . FULLY AUTOMATIC PRESTO BLOCK MACHINES!



. . . be sure to SEE how it's made and how it's laid . . . at the N. C. M. A. CONVENTION in ST. LOUIS FEBRUARY 25th to 28th, 1957

GET ALL THE DETAILS AND FRANCHISE MANUFACTURING INFORMATION TODAY! WIRE, WRITE OR PHONE:

© 1956 Presto Brick Mach. Corp.

PRESTO BRICK MACHINE CORPORATION
Empire State Bldg., New York, N. Y. • Pennsylvania 6-1353

BIG NEWS AT THE SHOW!

For the first time anywhere, see the new GENERAL series of block machines . . . new improved version of the NO PALLET MACHINE!

BOOTHS 114 and 115

CONCRETE INDUSTRIES EXPOSITION
Kiel Auditorium St. Louis, Mo.
February 25-28

GENERAL ENGINES COMPANY
Route 130 Thorofare, N. J.

PREMIUM SEPTIC TANKS

. . . made with modern **CARPENTER FORMS and Handling Equipment**

This method is a sure money-maker. CARPENTER Equipment means *faster* pouring, stripping, handling, resetting . . . *lower* labor costs . . . *better* units. ONE MAN takes care of deliveries. Satisfied customers throughout the U.S.A.

Don't delay—write TODAY!

CARPENTER MFG. CO.
Harvie Road, Phone 2-8938
Carrier 94, Box 479, Richmond 23, Va.

WAYLITE MASONRY

chosen for first fabricated house by

FRANK LLOYD WRIGHT

WAYLITE MASONRY ADVERTISED FOR YEARS!

For almost ten years, Waylite Masonry ads have appeared in architectural and other magazines. This one ran in the December 1956 issues of House & Home. Also in Architectural Record. Our 24-page catalog appears year after year in Sweets.

This continuous advertising of its merits helps provide the Waylite Masonry manufacturer with demand and ready acceptance.

Erdman Homes, Madison, Wisconsin, builder. Top view shows main entrance. Lower shows use of Waylite masonry units.

Frank Lloyd Wright's design of a residence for fabrication is now a reality. The first has been built at Madison, Wisconsin, and Waylite Masonry units were used for the massive utility core . . . the enormous fireplace . . . and the wall and flowerbox surrounding the terrace.

Waylite Masonry Units are always of high quality. They offer many unusual advantages. See 24 pages in Sweets, or write for catalog of engineering data and construction details. The Waylite Co., 20 North Wacker Drive, Chicago 6, or P.O. Box 30, Bethlehem, Pa.

WAYLITE

MASONRY UNITS

The lightweight unit for modern construction

PRASCHAK THUNDERBOLT

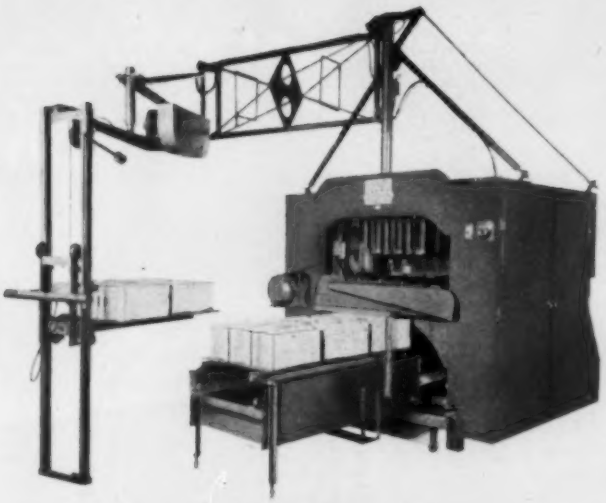
MODEL 30 3-BLOCK AUTOMATIC BLOCK MACHINE

THE MACHINE THAT HAS
THE INDUSTRY TALKING!

- ★ CAPACITY OF OVER 4 CYCLES/MIN. OR 800 BLOCKS PER HOUR
- ★ QUICK CHANGE MOULDS
- ★ POWERFUL DUAL SYNCHRONIZED VIBRATION
- ★ FULLY CAM OPERATED
- ★ FINGER TIP DENSITY CONTROL
- ★ FOOL-PROOF BLOCK HEIGHT CONTROL ELIMINATES SQUASHED BLOCKS

See The Thunderbolt At Our Booth
At NCMA Exposition In St. Louis, Feb. 25-28

- ★ FLOATING MOULD BOX SYSTEM
- ★ DIRECT FRONT END PALLET FEEDER
- ★ MAGNETIC FORK OFFBEARER



COMPLETE AS SHOWN READY TO GO—EQUIPPED WITH 8"MOULD FRONT END FEEDER & MAGNETIC FORK OFFBEARER **$10,000**

Write for Details PRASCHAK MACHINE CO. MARSHFIELD, WIS. *Factory to You Prices*

NO NEED TO CHISEL

NOW! Amazing... NEW KLEEN-MIX

HELPS WHISK OFF 'BUILT-UP' CONCRETE

*Actual photo Falls Block and Supply Co. Menamonee Falls, Wisconsin

KLEEN-MIX is the new easy way to prevent concrete "build up" on mixers, hoppers, conveyors, skip hoists, etc. For, KLEEN-MIX sprayed or brushed onto mixers cuts clean up time, reduces down-time and keeps equipment going longer. Apply KLEEN-MIX the night before then at the end of the next day — just use putty knife then "brush away" any build-up. No need to chisel, hammer and pound away. *Order a supply today!* Start saving time and money the day you use KLEEN-MIX.

Outstanding KLEEN-MIX Advantages

- Requires only brush and scraper for clean up.
- No chisels or air hammers needed.
- Cuts clean-up time in half.
- Increases life of machines and reduces down-time.
- So easy to apply — just spray on and let dry.

Forrer's PRODUCTS FOR MASONRY SINCE 1926

FORRER'S — Division of SPRAY-O-BOND CO. 2225 N. Humboldt Ave., Milwaukee 12, Wis.

Concrete Manufacturer Classified Section

431 S. DEARBORN ST., CHICAGO 5, ILL.

Advertising Rate Per Issue: $12.50 a Column Inch. Lower Rates on a Contract Basis — Write for Rate Card.

FOR SALE

UNIVERSAL CONCRETE PIPE MACHINE, Jackets, Pallets and all parts for manufacturing Tongue & Groove Pipe, 21" through 60" — 4 Forms and complete equipment for casting 84" pipe, also other pipe casting forms, for sale for delivery about March or April. Correspondence invited for complete list and prices.

BOX CM-1063, c/o THE CONCRETE MANUFACTURER
431 S. Dearborn St. Chicago 5, Ill.

FOR SALE

Stearns Zipper block machine, 8 and 4 inch mold boxes, pallets, mixer, loader, sand elevator, racks, lift truck, etc. Midwest location.

Box CM-2013, c/o THE CONCRETE MANUFACTURER
431 S. Dearborn St. Chicago, Ill.

WANTED

Someone interested in setting up block & Silo plant at our washing plant.

YOST BROTHERS
Pine City, Minn.

WANTED TO BUY

One used 4 yd. transit mixer with or without tandem axle truck.
Used bulk cement storage plant with 50' tower, at least 350 bbls. storage, must be in good condition. Give prices and complete descriptions.

GIRVIN COAL & DOCK CO.
BOX 307 MANISTIQUE, MICH.

FOR SALE

1—Marvel Drain tile machine, 4", 6", & 8" attachments. Less than 1000 units produced. Complete with motor $450.00.

EINUNG CONCRETE PRODUCTS
Wisner, Nebraska

FOR SALE

Lith-I-Bar L-5 block machine, 8 blocks per cycle, 720 per hour, 4" and 8" attachments, spare parts, in good condition, reasonable. Also 30 HP Ingersoll-Rand Air Compressor with Air Receiver and Air cooler, all in good condition, price reasonable.

SPEIGNER CONCRETE BLOCK CO.
DOTHAN, ALA. Phone: 2-5800

Use COLOR-BRITE FLOOR HARDENER
WITH C-D 39 ADDED

Color-Brite cement floors are Dust-proof, Wear-proof, Fade-proof, Rust-proof, with deeper color penetration. 10 beautiful color selections. Write for literature - prices.

LAMBERT CORPORATION
HOUSTON, TEXAS · ORLANDO, FLA.

SUPERINTENDENT WANTED

Concrete products and ready-mix plant. Must know all phases of manufacturing and maintenance. Excellent opportunity for go-getter . Complete resumé in first reply. Confidential. Write:

Box CM-1123 c/o The Concrete Manufacturer
431 S. Dearborn St. Chicago 5, Ill.

FOR SALE
Exceptional Buy

Well known make continuous mixer and feeders. Machine never used due to plant alterations. Has capacity to supply a two-block per cycle molding machine.

BOX CM-2063 c/o THE CONCRETE MANUFACTURER
431 S. Dearborn St. Chicago 5, Ill.

FOR SALE

Quinn heavy duty concrete pipe forms, unused, sizes 6" to 36" approximately 20 forms of each size and over 200 pallets for each size, will consider all reasonable offers, for all, or part.

CM-2023 c/o THE CONCRETE MANUFACTURER
431 S. Dearborn St. Chicago 5, Ill.

MINERAL COLORS
for
BRICK MORTAR STUCCO-PLASTER-CONCRETE

"Fine Because of Their Fineness"
Ask for samples and recommendations.
BLUE RIDGE TALC CO., INC.
HENRY, VIRGINIA

FOR SALE

Fork and platform power lift trucks, used and guaranteed factory rebuilts.

ERICKSON POWER LIFT TRUCKS, INC.
Saint Anthony Blvd. & University Ave. N.E.
MINNEAPOLIS 18, MINNESOTA
Phone—Sterling 1-9508

PUMICE

Ideal for split rock and standard block. 8" block has "U" factor below .30 BTU per sq. ft. per hr. cores unfilled. Grade ⅜" to fine $1.75 per cu. yd., mine run $1.50, FOB cars Domingo, N.M. Freight rates on request. Produced by block manufacturers.

LAVA PUMICE, INC.
P.O. Box 387 Albuquerque, N. M.

FOR SALE

Concrete Products Plant located at Buffalo, Minnesota—County Seat Town—Rich Farming and Dairying community—precast culvert and sewer pipe—block (sand and lightweight) Drain Tile—septic tanks—cesspools—lintels—anchor block, etc.—washing and screening plant and unlimited supply of material. Expansion possibilities great. Illness forces retirement.

W. S. Matison, Owner
WRIGHT COUNTY CONCRETE CO.
Buffalo, Minn.

SALESMEN WANTED

Prominent Block Machine Manufacturer has several territory openings (Southeast and Mid West) offering good immediate earnings, excellent future potential. Experience selling to Block Plants desired. Write in confidence, sending complete resume of experience and personal data to:

BOX CM-1043 c/o THE CONCRETE MANUFACTURER
431 S. Dearborn St. Chicago 5, Ill.

FOR SALE

Exclusive franchise and complete equipment for manufacturing and delivering nationally-known reinforced concrete septic tank. Equipment can be moved. Reasonable price.

BOX CM-2053 c/o THE CONCRETE MANUFACTURER
431 S. Dearborn St. Chicago 5, Ill.

SALESMEN

With experience in block or brick plants to sell the SUPERLITE UNLOADER. Territories open Northeast and Western. Demonstrator furnished. Salary, commission and expenses paid. Excellent opportunity for right men.

BUILDERS EQUIPMENT COMPANY
3810 North Central Ave. Phoenix, Ariz.

FOR SALE

1—F4R Erickson lift truck, 4000 lbs., sideshifter and 6 cubing forks. Priced for quick sale. 30 days 50-50 guarantee. Owner bought 2 larger Erickson trucks.

H. G. RAPLEY
931 Wall St. Port Huron, Mich.
Yukon 2-0539

PLAIN STEEL PALLETS

Flat • Square • Accurate
Guaranteed Quality

J & S Steel Corp.
4415 W. FILLMORE ST.
CHICAGO 24, ILL.
Phone Van Buren 6-9000

TESTERS

For

BLOCKS
CYLINDERS
CUBES
BEAMS
LINTELS
PIPE AND SLABS

If it's a concrete tester you need—get in touch with

FORNEY'S, Inc.
TESTER DIVISION
P. O. BOX 310 · NEW CASTLE, PA.

FOR SALE

L 5-3 Block Lith-I-Bar Block Machine—1953 Model—with Following Attachments. 4"-6"-8" 12"-Header, Bond Beam, will sell separately, Silo Block. All in Boxes. 1-40 H.P. Worthington Compressor. All This Equipment in No. 1 Condition.

Gilbert Concrete Products Co.
Box 1340 Hendersonville, N. C.
Phone 4463

PRICED FOR QUICK SALE

1 Go-Corp King Block Machine, complete with spare parts, moulds and a new automatic rackman. All in very good condition. Terms may be arranged.

JACKSONVILLE CONCRETE COMPANY
P. O. Box 4556 Jacksonville, Fla.

PLAIN STEEL PALLETS

Guaranteed Quality
Flat • Square • Accurate
GARY STEEL SUPPLY COMPANY
2300 S. Springfield Ave.
CRawford 7-2525 Chicago 23, Ill.

SWAP — SELL — BUY

BLOCK MACHINES

Stearns #7 & 9 Jolteretes (Jolterete owners at this price buy one for spare parts.)	$500.00 each
Mold Boxes #7 & 9	150.00 each
2—Multiflex Chimney Block Machine...	150.00 each
1—Y-40 Truckman Fork-Lift 4000 lbs. capacity	3500.00
1—25 Cu. Yd. Single Bin Hopper	1500.00
2—Air Offbearers Stearns #7 & 9	250.00 each
2—Hand Lift Trucks	175.00 each
100—Racks for cored steel pallets 100,000 pressed steel pallets in stock (Send tracing or sample for quotation).	10.00 each

WRITE • WIRE • PHONE
Mr. McCaughey

Send in list of equipment you need. If we don't have it in stock, we usually know where we can find it at a bargain.

GENERAL ENGINES CO., INC.
Route 130 Thorofare, N. J.
Phone: Tilden 5-5400

FOR SALE

5—36" Quinn heavy duty concrete pipe forms
3—30" Quinn heavy duty concrete pipe forms
5—24" Quinn heavy duty concrete pipe forms
We also have extra equipment including 2 and 3 extra pallets and heddars with each form. We also have more forms which were built locally.

GOSSETT PIPE COMPANY
Greenville, S.C.

STEAM CURING MACHINERY & EQUIPMENT

AUTOCLAVES
QUICK OPENING DOORS
SILENCERS,
EXHAUSTERS,
TEMP. & PRESS.
RECORDING METERS

SHORE ENGINEERING
322 BROADWAY
NEW YORK 7, N. Y.

KILN DOORS & CARRIERS
INSULATED CONCRETE
ROOF PLANKS
STEAM BOILERS,
HIGH & LOW PRESS.
DRYERS

FOR SALE
COLUMBIA BLOCK MACHINE

Pallet cleaner, oiler and off-bearer completely overhauled, practically good as new. Output 3300 to 3800 in eight hours. Will sell at a bargain. Can see it operate. Reason for sale, installed faster Columbia. Details furnished.

LEONARD'S BRICK & CONCRETE WORKS
Route #5 Winston-Salem, N. C.
Tel. 3-8884

CEMENT COLORS

All shades and grades the highest quality. Write for color cards, prices and samples

RICKETSON MINERAL COLOR WKS.
MILWAUKEE 2, WISCONSIN
Established 1885

PLAIN PALLET CLEANING

We truck our machine to your plant and supervise entire cleaning and planing off of pallet residue. No need to shut down as we will keep up with production.

EDWARD A. LOBSTEIN
5363 Seminole Ave. Detroit 12, Mich.
Phone: Walnut 2-1135

FOR SALE

One Praschak, two-block machine, complete with 4" and 8" cored pallets. Good working condition. Bargain.

FLEMING MANUFACTURING CO.
CUBA, MISSOURI • PHONE CUBA 400

FOR SALE

STEARNS 28 CUBIC FOOT GEAR HEAD MIXER IN GOOD CONDITION
CONTACT:
AUGUSTA CONCRETE BLOCK COMPANY
315 JEFFERSON DAVIS HIGHWAY
AUGUSTA, GEORGIA
PHONE 5-5524

PIPE & TILE MACHINES

Several models — up to 36" diameter

← FLOOR LEVEL

Model 4-24. Makes up to 24" diameters and lengths up to six feet. Rubber gasket or plain.

Write Today..

HYDROTILE
MACHINERY CO.
NASHUA • IOWA

FOR SALE

No. 7 Jolterete 4"-8"-12" molds, New heads and liners. Pallets for all molds, Pallet dunker, 24 racks, turn table, all in good condition. *Best offer.*

Jeep trencher, good condition $850.00

MID-WEST SILO & BLOCK COMPANY
Morris, Ill.

FOR SALE

PROFITABLE READY-MIX PLANT

Eastern Iowa location. Eight to nine month per year operation has netted this firm an average $25,000.00 profit on a gross of $50,000.00 to $60,000.00. Property includes building, 4 city lots, 14 acre pit and all equipment. Appraised value is $75,000.00. A road job scheduled for next spring in the vicinity of the plant should net more than $15,000. Sale also includes 12,000 tons of washed sand and gravel. An excellent buy priced at $55,000.00, plus inventory of cement and miscellaneous items.

TRANS-CONTINENTAL
1280 N. Dearborn St. Chicago 10, Ill.
Phone: WHitehall 3-2071

FOR SALE

One L-5 LITH-I-BLOCK three block machine with automatic pallet return. Attachments for making 2" - 4" - 6" - 8" - 10" - 12" blocks; also chimney and manhole blocks. Additional equipment for making special blocks. All equipment is in excellent condition and may be seen in operation at our plant daily until March 1, 1957.

ARTHUR WHITCOMB, INC.
Keene, New Hampshire

HERE'S A REAL BARGAIN IN ALMOST NEW BLOCK PLANT EQUIPMENT

Installed new in May 1956

FLEMING MODEL 180 ONE BLOCK MACHINE

8x8x16—6x8x16—4x8x16

12x8x16 MOLDS... all with half and sash...

1650—1x10x18 AND 800—1x14x18 WOOD PALLETS...

FLEMING MODEL 12 MIXER

FLEMING MOD. 14 SKIP HOIST

25-60 BLOCK RACKS...

See this equipment in operation...

GORDON'S CONCRETE PRODUCTS

405 N. Mason, Ft. Collins, Colorado

FOR SALE

Block plant located near Phila. area can be bought as package unit or equipment can be purchased separately.

1 Besser Vibrapac complete with magnetic off-bearer and pallet return.
1,000 Plain Pallets 18½ x 26 x ⅞.
4", 8", 12". Mold Boxes.
50 Steel Racks 72 Block capacity.
1 Praschak 30 cu. ft. mixer and skip loader with 20 H.P. motor.
1 Kewanee 50 H.P. Low Pressure horizontal boiler.
1 Hyster fork truck, 4,000 lbs. capacity.
1 Yale electric platform truck with charger, 4,000 capacity.
1 Scoopmobile front end loader, 1 yd. capacity.

CALN BLOCK COMPANY
2471 WAYNE AVE. COATESVILLE, PA.
PHONE 2880

CONCRETE BLOCK MACHINE FACTORY RECONDITIONED

FMC-180, plain pallet block machine, guaranteed. Comes complete with motors and mold box. Capacity 1400 blocks daily. $2750.00. Financing available.

FLEMING MANUFACTURING CO.
CUBA, MISSOURI

FOR SALE

2 HETZEL TUBULAR CEMENT VALVES
24"x24"x16" — AS NEW — COMPLETELY OVERHAULED—$200.00 each

COOPER BLOCK LIMITED
Station Road
Pickering, Ontario, Canada

METAL MOLDS & VIBRO—TABLES

Splash-Blocks • Step Treads
Window Wells • Dist. Boxes
Chimney Caps • Wall Cap
Lawn Trim • Stepping Stones

BAR-X
BAR-B-Q anud INCINERATOR UNITS

Special Molds Made to Order!

Write Today..

SPILLMAN MFG. CO.
Box 534, Station G
Columbus, Ohio

FOR SALE

3—Dry Kiln Doors, with Automatic Controls
1—11 Cu. Ft. Kent Mixer, with 15 ft. conveyor
1—8" Header Mould Box for Stearns #50
50—18½ x 18½ x ⅞ Plain Steel Pallets
1—10 Yd. Sand & Gravel Bin.

CONCRETE BLOCK & SUPPLY CORP.
216 S. Main St. Jasper, Ind.
Phone 680

Plant Design Layout Machinery Block

WITTEMANN MACHINERY COMPANY
FARMINGDALE, NEW JERSEY
Specialists in Concrete Products Equipment
Eastern Representatives of the
COLUMBIA MACHINE WORKS, Vancouver, Washington

Elevators Bins Conveyors Feeders

COLORS *For Cement and Concrete*

COLOR YOUR CONCRETE WITH LANSCO CEMENT COLORS, available in 40 ATTRACTIVE shades. Suitable for all types of concrete products. Write for our new color card, copy of "Suggestions For Using Cement Colors", and for free samples and price list.

Manufactured by:

LANDERS-SEGAL COLOR CO.
71 Delavan St. • Brooklyn 81, N. Y.

HIGH PROFIT LOW COST

Easy Stripping Metal Molds
•
Send for Free Bulletin

Here is a real money maker for that last bit of good cement from your mixer. Our completely new basement window sill fits 12" and 20" standard basement windows for 32" wall opening, @ $10.00, less 10% discount for ten or more. F.O.B. In lots of 10 they may be mixed for 8" wall 10" & 12" wall.

PARK MOLD & STEP CO.
1020 N. Raymond Rd. Battle Creek, Mich.

FOR SALE

New type of Hydraulic Automatic Stone Making machine up to 15000 stones a day proven completely satisfactory in Production. Also available excellent European make Automatic Hydraulic Block and Brick Making machine 5000 and 8000 a day production. Attractive prices. Write for particulars.

TRANSATLANTIC MACHINERY CO.
155 King St. E. Toronto, Ont., Canada
Phone EM 4-5816

NOW MORE THAN **150** LICENSED MANUFACTURERS *Producing*

Patented

homeward ®
Concrete STEPS

A Small Investment That Pays Big Dividends

Homeward all metal forms are precision built to produce a product that requires no hand finishing.

The exclusive franchise for your territory may still be open.

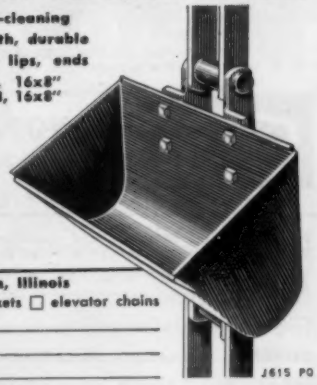
For Complete Information Write

ROGER F. WILLIAMS, Licensor
3420 S. W. 9th St. Des Moines (15), Ia.

® homeward is a Registered TRADE MARK

JOHNSON all-welded ELEVATOR BUCKETS

- smooth — fast-filling, quick-cleaning
- light in weight, high-strength, durable
- heavy-gauge, long-wearing lips, ends
- cement: 10x6, 12x7, 14x8, 16x8" aggregate: 10x6, 12x7, 14x8, 16x8"



Long-life CHAIN

- carburized steel knuckles
- med.-high carbon side bars
- alloy heat-treated ⅝" pins
- welded bucket lugs

C. S. JOHNSON CO., Champaign, Illinois
Send more information on: ☐ buckets ☐ elevator chains
NAME_____
STREET_____
CITY, STATE_____

J615 PO

STOW DEVELOPS TWO NEW PRODUCTS FOR PRECAST WORK

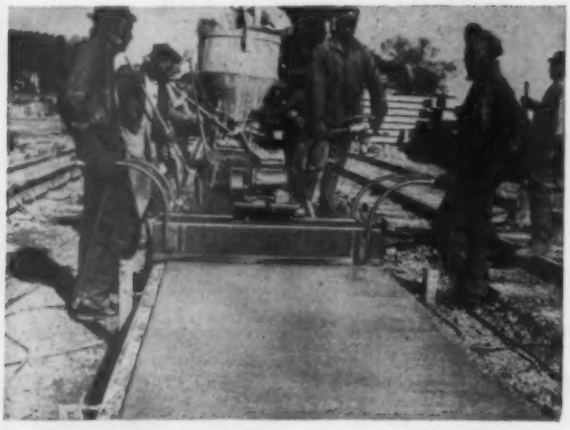
POWER MIDGET VIBRATOR

The manufacturers of precast concrete products have long needed a vibrator head "to work in the narrow forms we use" . . . a head about 1¼" in diameter. For a long time it was thought improbable that a head *this* small could really do any work.

Now, Stow Manufacturing Co. has developed a vibrator with a 1¼" head that really packs a wallop. It is powered by a 1½ HP universal motor, with trigger switch, which drives head at 12,000 VPM. Thoroughly field tested, the Power Midget is ideal for precast work, perfect for any job where narrow forms are required (bank vaults, manholes, etc.).

TWIN BEAM VIBRATING SCREED

In addition to the Power Midget Vibrator, Stow Manuacturing Co. has developed and thoroughly tested this revolutionary machine for striking off thin precast slabs; a vibrating screed with *two* beams. *Working with this Twin Beam Screed gives the effect of making two passes at once.* The vibrating head transmits the vibration evenly to both beams. Thus as the screed is worked along, the first beam strikes off the concrete, while the second beam gives the concrete a final finish! For more information on the Power Midget Vibrator, or the Twin Beam Screed, contact your Stow Distributor. In most cities, you'll find him listed under "Concrete Vibrators" in the yellow section of your telephone directory. Or, if you prefer, send in the coupon below.



For complete information on Vibrators, Screeds, Roto-Trowels, Concrete Grinders, write for Stow Catalog 560.

STOW **MANUFACTURING CO.**

118 Shear Street, Binghamton, N. Y.

Please send me literature and specifications on the Stow Power Midget Vibrator and the Twin Beam Screed.

NAME.....

COMPANY.....

STREET.....

CITY.....STATE.....

INDEX TO ADVERTISERS

A A Wire Products Co. 229
Automatic Spring Coiling Co. 253

*Bergen Machine & Tool Co., Inc. 197
*Besser Co. 186, 201-204, 245
*Blaw-Knox Co. 217
Burns & Russell Co. 189
*Butler Bin Co. 195

Carpenter Manufacturing Co. 246
Chain Belt Co. 231-232
Chase Foundry & Mfg. Co. 243
Classified Section 249-251
Cleaver-Brooks Co. 184
Clipper Mfg. Co. 242
Columbia Machine Works 213
Columbia Southern Chemical Corp. 255
Concrete Controls Corp. 223
Concrete Machinery Co., Inc. 234
*Construction Machinery Co. 256
Cook & Ingle Concrete Products Co., Inc. 254

Davis Co., Frank D. 242
Dow Chemical Co. 182
Dur-O-wal 253

Economy Forms Corp. 192
Edick Laboratories 224

Forney's Inc. 250
Forrer's Division,
Spray-O-Bond Co. 237, 248
*Fuller Company 218

*General Electric Co.,
Communication Equipment 207
General Engines Co., Inc. 246, 250
GO Corp. 193
Gordon's Concrete Products 251
Griffin Corp., Larry 190
Gwynne, Inc., J. H. 254

Hydrotile Machinery Co. 250
*Hyster Company 227

Irvington Form & Tank Corp. 246

Jaeger Machine Co. 208-209
*Johnson Co., C. S. 251

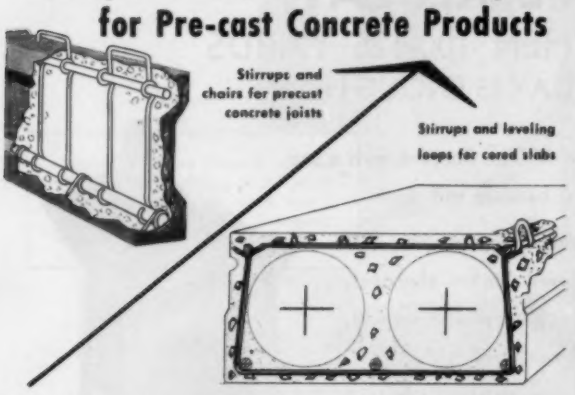
Kent Machine Co. 200

Lackey, Inc., W. H. 219
LEAP Concrete, Inc. 236
Lehigh Portland Cement Co. 191
*Lith-I-Bar Co. 257

Mace Company 242
Marvel Engineering Co. 240
*Master Builders Co. 258
McNamar Boiler & Tank Co. 225
Memphis Equipment Co. 192
Monarch Road Machinery Co. 238

*See also Detailed Information in 1956 Pit and Quarry HANDBOOK and CONCRETE INDUSTRIES YEARBOOK.

Stirrups, Chairs, Wire Form Hangers for Pre-cast Concrete Products



Special Sizes Made on Request. Prompt Delivery All Standard Sizes.

- **Stirrups and Chairs:** Designed for ease of use in the reinforcing of precast concrete joists, prestressed concrete cored slabs and other products.
- **Wire Form Hangers:** Carefully shaped to provide a fast method of installing formwork between joists.

SEND for prices, literature, samples Today!

for quality springs "Automatically" think of
AUTOMATIC
SPRING COILING CO.
4044 West Thorndale Ave., Chicago 30, Ill.

EVENTUALLY

you'll be needing kiln closure equipment—for replacement, modernization, or expansion. So, while at the Saint Louis Exposition (and we sure hope you're coming), be sure to see

BOOTH No. 33

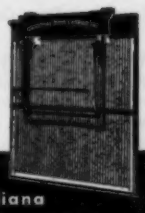
where you'll find the *tough, efficient, trouble-free equipment* you'll be needing—sooner or later.

See you in St. Louie!

Universal

KILN DOORS and DOOR CARRIERS

NEW *Uni-Seal Door Gasket and Cement—*
NEW *Uni-Coat Rust Preventive Coating*



UNIVERSAL DOOR CARRIER, INC.
1117 Cornell Ave., Indianapolis 2, Indiana
"SPECIALISTS IN KILN CLOSURE EQUIPMENT—SINCE 1904"

CASH IN ON THE DEMAND for Dur-O-waL

Butt weld Dur-O-waL lies flat in the mortar bed . . . . handles fast . . . . provides crack control for every type of masonry wall.

6 Reasons why Dealers Stock Dur-O-waL

- Dur-O-waL is called for by name
- Architects specify Dur-O-waL
- Dur-O-waL is an engineered product
- Dur-O-waL is a quality product
- Dur-O-waL has a fast turn-over
- Dur-O-waL is easy to handle

Trussed Design
Butt Weld • Deformed Rods

DUR-O-WAL®

the Backbone of Steel for EVERY masonry wall

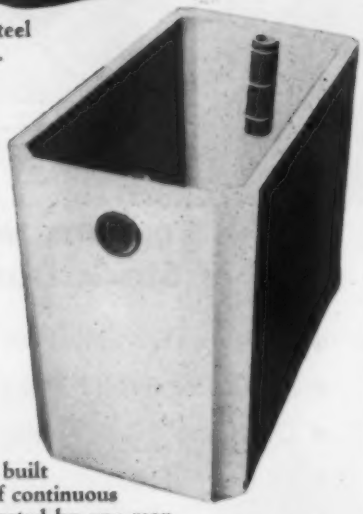
See us at the CONCRETE INDUSTRIES EXPOSITION—Kiel Auditorium—St. Louis, Mo., Feb. 25 through 28

2¢/Cod

Dur-O-waL Div., Cedar Rapids Block Co., CEDAR RAPIDS, IA. Dur-O-waL Prod., Inc., Box 628, SYRACUSE, N.Y. Dur-O-waL of Ill., 119 N. River St., AURORA, ILL. Dur-O-waL Prod. of Ala., Inc., Box 5446, BIRMINGHAM, ALA. Dur-O-waL Prod., Inc., 4500 E. Lombard St., BALTIMORE, MD. Dur-O-waL Div., Frontier Mfg. Co., Box 49, PHOENIX, ARIZ. Dur-O-waL, Inc., 165 Utah St., TOLEDO, OHIO

THE SMITH SEPTIC TANK FORMS AND TRUCK HANDLING RIG

From the SMITH steel septic tank form . . . to the finished reinforced concrete septic tank . . .



for production of 500; 600; 750 and 1,000 gallon units

SMITH truck rig is built to give many years of continuous service. Entirely operated by one man.

Write Today for Complete Details

DISTRIBUTED BY

COOK & INGLE

CONCRETE PRODUCTS CO., INC.

305 Fernwood Ave., Dalton, Ga.

Phone 1697 P.O. Box 626

WE REPEAT!

WHEN 100-125 YARDS A DAY IS ENOUGH—

The 47 Ton Simplex with a two yard batcher will do it.

Charged by two type B enclosed bucket elevators, for aggregate and cement, and equipped with a 100 Bbl. auxiliary cement storage (total capacity 175 Bbl.) and reclaiming equipment, the price is

FOB CAMDEN, OHIO $9753.00

GWYNNE Concrete Plants

BIN BATCHER

J. H. GWYNNE, INC. CAMDEN, OHIO

Olsen Corp., Gene 193
Oswalt Engineering Service Corp. 243

Pioneer Rubber Co. 243
Praschak Machine Co. 248
PreCaster, Inc. 239
Presto Brick Machine Corp. 246

Quinn Wire & Iron Works 236

Reichard-Coulston, Inc. 237

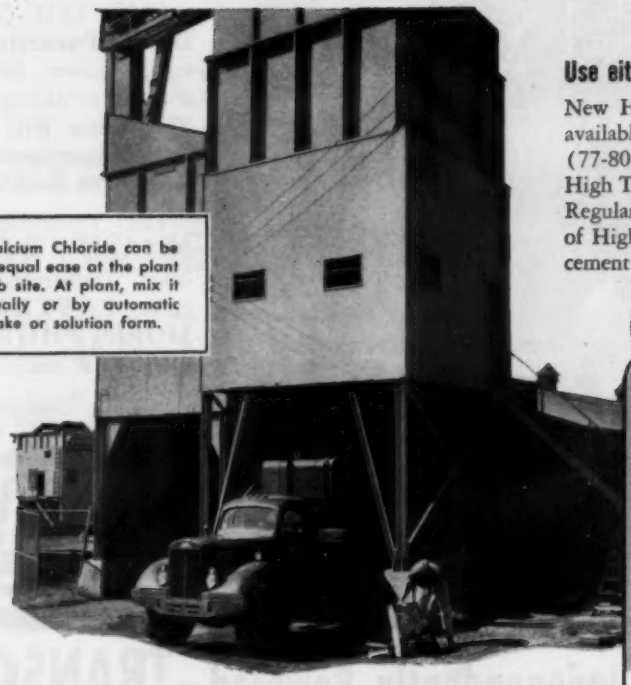
Sarasota Engineering Co., Inc. 235
Side-O-Matic Unloader Corp. 199
Solvay Process Division, Allied Chemical & Dye Corp. 245
Spillman Co., R. I. 251
Standard Dry Kiln Co. 230
*Stearns Mfg. Co. 183
Stow Mfg. Co. 252

Truck Mixer Manufacturers Bureau 226

*Universal Door Carrier, Inc. 253

Waylite Company 247
Westinghouse Transit Mixer Division, LeTourneau-Westinghouse Co. 241
Williams, Roger F. 251

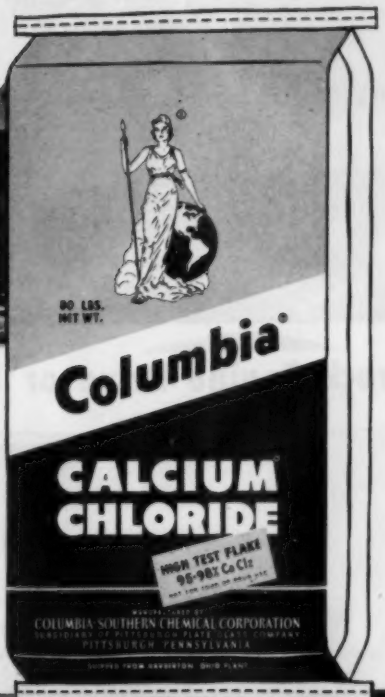
*See also Detailed Information in 1956 Pit and Quarry HANDBOOK and CONCRETE INDUSTRIES YEARBOOK



Columbia Calcium Chloride can be added with equal ease at the plant or at the job site. At plant, mix it either manually or by automatic feeder, in flake or solution form.

Use either New High Test or Regular Strength

New High Test Flake (95-98% $CaCl_2$) is now available as a companion product to Regular Flake (77-80% $CaCl_2$). Each easy-to-handle 80-lb. bag of High Test does the job of a standard 100-lb. bag of Regular. At temperatures below 70°F, add 1.6 lbs. of High Test or 2 lbs. of Regular for each bag of cement used.



Get stronger concrete and still save days

WITH COLUMBIA CALCIUM CHLORIDE

IN READY MIX . . . Customers really appreciate the savings when ready mix producers recommend and add Columbia Calcium Chloride. Both speed of set and strength are increased considerably, especially below 70°F. Initial and final set are three times faster; early strength is 50% greater at the 72-hour point; ultimate strength also tests higher.

All these factors mean earlier form removal, faster finishing, quicker completion of the job. No *wonder* customers prefer to re-order from suppliers who treat ready mix with Columbia Calcium Chloride.

IN CONCRETE PRODUCTS . . . Columbia Calcium Chloride cuts manufacturing costs while upgrading concrete product quality, whether it's precast units, block, or pipe. Initial set time is reduced more than 50%; normal three day strength is reached within 24 hours. Presteam wait is reduced, yet curing is faster and more dependable. There's much less danger of cracked units during early handling . . . and the product has higher ultimate strength, too. Earlier delivery of the order, smaller inventory, lower manufacturing costs . . . hadn't you better check on Columbia Calcium Chloride *today?*

Concrete made with normal, air entrained, or high early cements benefits when Columbia Calcium Chloride is added to the mix.

Write today for complete information. Please indicate whether you are interested in ready mix or concrete products.

COLUMBIA-SOUTHERN CHEMICAL CORPORATION

SUBSIDIARY OF PITTSBURGH PLATE GLASS COMPANY

ONE GATEWAY CENTER • PITTSBURGH 22 • PENNSYLVANIA

DISTRICT OFFICES: Cincinnati • Charlotte • Chicago • Cleveland Boston • New York • St. Louis • Minneapolis • New Orleans Dallas • Houston • Pittsburgh • Philadelphia • San Francisco

IN CANADA: Standard Chemical Limited and its Commercial Chemicals Division

CMC TED (Truck Engine Drive) Transcretes use truck engine power to drive mixer without sacrificing performance! This means **BIG SAVINGS – up to $55 per month per machine on gasoline alone.**

TED Transcretes have all the **BIG VALUE** features found on other Transcretes which guarantee **FASTER** charging – **MORE THORO** mixing – **QUICKER** discharge!

Sizes to 7-yard mixing capacity.

Truck Engine Drive or Independently Powered – TRANSCRETES are real money makers!

All CMC Transcretes have: (1) **Hopper** that "Swings In" for faster charging, "Swings Out" for quicker discharge. (2) **Floating Drive** that eliminates all the troubles of ordinary rigid drives. (3) **Drum** with extra large diameter head plus deep "L" section blades for more-thoro mixing action.

Transcretes with separate mixer engine are available in many models to 7-yard mixing capacity.

Make bigger Ready-Mix profits. Write for these
2 FREE Transcrete Bulletins
on (1) Auxiliary Engine Transcrete (2) TED Transcrete

CONSTRUCTION MACHINERY COMPANY, Waterloo, Iowa

YOU OWE IT TO YOUR
GREATER, SMOOTHER PRODUCTION
OF TRUER, FINER CONCRETE BLOCK
TO SEE THE NEWER, MORE EFFICIENT

LITH-I-BLOCK

TWO and THREE BLOCK HYDRAULIC MACHINE

•

MEET US AT ST. LOUIS
BOOTH "B"

KIEL AUDITORIUM
FEBRUARY 25 - 28

•

IF YOU CAN'T MAKE IT, THEN WRITE FOR FULL INFORMATION

•

LITH-I-BAR COMPANY • Holland, Michigan

Sales and Service World-Wide

for the world's first circular office building...

architect-engineer specifies POZZOLITH to get better quality concrete

Here, as in many other architectural concrete buildings constructed since 1932, Pozzolith was employed to help avoid honeycombing and other segregation defects. A better surface was obtained because of improved cohesiveness and plasticity...even when water was substantially reduced.

Other concrete requirements are also met best with Pozzolith. This is because Pozzolith with its adaptations is key to the control of:

1. ***Water content***...makes possible lowest unit water content for a given workability.
2. ***Entrained air***...provides optimum air content without sacrificing other desired qualities.
3. ***Rate of hardening***...gives desired handling and finishing time under widely varying job conditions.

Any one of our more than 100 skilled field men will be glad to demonstrate the full benefits of Pozzolith for your project, and to advise of the availability of Pozzolith Ready-Mixed Concrete through more than 1000 qualified producers.

Capitol Records Office Building, Hollywood, California
Architect-Engineer: Welton Becket, F. A. I. A., and Associates, Los Angeles
Structural Engineer: Murray Erick Associates, Los Angeles
General Contractor: C. L. Peck, Los Angeles
Pozzolith Ready-Mixed Concrete Supplied by
Transit-Mixed Concrete Co., Pasadena

THE MASTER BUILDERS CO.

Division of American-Marietta Company

Cleveland 3, Ohio—Toronto 9, Ontario

Cable Address, Mastmethod, N. Y

EMPTY BUCKETS CAN MEAN...

MORE PROFITS

HENDRIX
DRAGLINE BUCKETS

...DUMP CLEANER allowing a full load capacity on every digging cycle. A full bucket every cycle results in more material moved in less time for the lowest "cost-per-yard."

Hendrix Lightweight Dragline Buckets

A TYPE FOR EVERY DIGGING PURPOSE

¼ to 40 Cubic Yards

All Hendrix Buckets available without perforations

HENDRIX MANUFACTURING COMPANY, Inc.

MANSFIELD, LOUISIANA

Advertising rate per issue:

$10.50 per column inch. Lower rates for larger space used and/or on a contract basis.

Write for rate card.

Closing date:

20th of month preceding date of publication.

PIT & QUARRY
431 S. Dearborn St. Chicago 5, Ill.

BROADCAST

Section

WANTED

A Chief Engineer and a Power Engineer for the Cement Factory, Kankesanturai, of the Government of Ceylon.

1. Applications are invited for the following posts:
   (a) CHIEF ENGINEER in the Cement Factory, Kankesanturai, Ceylon, on a salary of Rs.2,100 - 100 - Rs.3,000 per month without allowances but free of income tax;
   (b) POWER ENGINEER in the Cement Factory, Kankesanturai, Ceylon, on a salary of Rs.1,800 - 100 - Rs.2,200 per month without allowances but free of income tax.
2. Further particulars may be obtained from the Office of the Ambassador for Ceylon, 2148 Wyoming Avenue N. W., Washington, D. C.
3. Applications for the above posts should reach the Chairman, 'Kankesan Cement Works' Corp., 110 General's Lake Road, Colombo, Ceylon, on or before February 20th, 1957.

CHIEF ENGINEER

Leading Company in Materials Handling Field has a challenging opening for a top-flight Aggregate Plant Designer. Must be familiar with plant layout, equipment selection and steel design. Job location in New York area.

- Salary open
- Exceptional Employee Benefit Plan
- A future with a good present

Send resume including salary requirements to:

BOX PQ-1053 c/o PIT & QUARRY PUBLICATIONS
431 S. Dearborn St. Chicago 5, Ill.

HELP WANTED

Large northeastern operation is looking for a young, aggressive superintendent with experience in managing a quarry and crushing operation; cement experience preferable, but not essential. Must have knowledge of labor relations, costs and organizational techniques and have had administrative experience in working through foremen. Salary up to $10,000, plus other monetary benefits.

BOX PQ-2033 c/o PIT & QUARRY PUBLICATIONS
431 S. Dearborn St. Chicago 5, Ill.

Assayers
Consultants
Designers

Professional Services

Engineers
Geologists
Technicians

CORE DRILLING
ANYWHERE
We look into the earth
PENNSYLVANIA
DRILLING COMPANY
PITTSBURGH 20, PA.

JOHN F. MEISSNER ENGINEERS INC.
CONSULTING & DESIGNING ENGINEERS
BULK MATERIALS HANDLING
SPECIALISTS IN DESIGN OF CRUSHED STONE, SAND, GRAVEL AND READY MIX PLANTS
308 W. WASHINGTON • CHICAGO 6, ILL.

FOUNDATION TESTING, CHEMICAL ANALYSIS
CORE DRILLING
Thomasville Drilling & Testing Co.
THOMASVILLE, PENNA.

Quarries
Crushing Plants
Cement Plants
Storage Methods
Operating Costs

E. Lee Heidenreich, Jr.
Consulting Engineer
75 Second St.
Newburgh, N. Y.
Phone: 1828
9 South Clinton St.
Chicago 6, Ill.
Ph. FR 2-4186

Construction
Design
Operation
Plant Layout
Appraisals

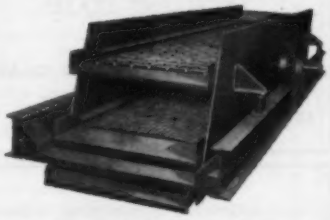
JOHNSON SOILS ENGINEERING LABORATORY
Foundation Design—High & Airport Pavements—Construction Control—Load Tests—Shear & Consolidation Tests—MOBILE LABORATORIES.
193 West Shore Ave. Bogota, N. J.
Bogota-Hubbard 7-4408

REFER TO THIS SECTION WHENEVER YOU NEED PROFESSIONAL ADVICE IN YOUR FIELD.

BONDED EQUIPMENT BARGAINS

IMMEDIATE SHIPMENT FROM OUR FACTORY - WRITE, WIRE OR PHONE

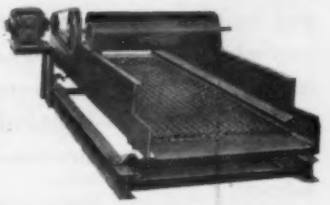
NEW BONDED® HEAVY DUTY VIBRATING SCREENS



Model Number	No. of Decks	Screening Area	Sale Price
124AS	1	2'x4'	$ 443.00
224AS	2	2'x4'	472.00
126AS	1	2'x6'	472.00
226AS	2	2'x6'	501.00
136AS	1	3'x6'	581.00
236AS	2	3'x6'	688.00
336AS	3	3'x6'	956.00
138AS	1	3'x8'	675.00
238AS	2	3'x8'	815.00
338AS	3	3'x8'	996.00
336BS	3	3'x6'	1303.00
436BS	4	3'x6'	1447.00
138BS	1	3'x8'	1231.00
238BS	2	3'x8'	1282.00
338BS	3	3'x8'	1375.00
248BS	2	4'x8'	1865.00
348BS	3	4'x8'	2035.00
2410BS	2	4'x10'	1953.00
3410BS	3	4'x10'	2305.00
2412BS	2	4'x12'	2319.00
3412BS	3	4'x12'	2635.00
4412BS	4	4'x12'	2833.00

HEAVY DUTY MODELS, TYPE BS: Four bearing positive throw eccentric shaft; 3' x 6' to 5' x 14', 1 to 5 decks. Write for New 8-page Bulletin No. 1087.

NEW BONDED® GENERAL DUTY VIBRATING SCREENS



GENERAL DUTY SCREENS, TYPE AS: Eccentric weight mechanism, spring mounted, 1 to 3 decks, 2' x 4' to 3' x 8'. Write for New 8-page Bulletin No. 1086.

For mineral, chemical and other industrial products. Fast, efficient and economical for cleaning, sizing, grading, dewatering. Made in all metals, including stainless steel. Enclosed models for hot materials or dust control. Bonded screens are built for any screening operation, wet or dry.

NEW BONDED® TROUGHING IDLER CONVEYOR BARGAINS

Complete Ready-Fab sections quickly and easily joined together on the job. We take our loss on our stock of short length belting. You can save as much as 50% on the BONDED CONVEYOR SPECIALS listed, with conveyor belting in two pieces. Conveyors are equipped with 5" roll diam. idlers and return rolls, 20" diam. head pulley and 16" diam. tail pulley mounted on 2¼" or 2-7/16" diam. shaft. Belt is new 4-ply, 28-oz. duck, ⅛" top rubber cover x 1/32" bottom cover and is fresh stock made by leading manufacturers.

Remember, You Save Up To 50%

Conveyor Prices Include Belting

Belt Width	Length of Conveyor	List Price	Sale Price
14"	25'	$1397	$ 722
14"	50'	2222	1144
14"	85'	3377	1733
16"	20'	1262	636
16"	45'	2137	1088
16"	60'	2662	1359
16"	90'	3712	1900
18"	25'	1477	784
18"	45'	2217	1166
18"	70'	3142	1648
18"	85'	3697	1933
18"	100'	4252	2220
18"	130'	5362	2797
20"	25'	1517	828
20"	60'	2882	1533
20"	75'	3467	1839
20"	90'	4052	2145
24"	25'	1590	898
24"	45'	2430	1330
24"	70'	3480	1875
24"	100'	4740	2514
24"	120'	5580	2950
24"	150'	6840	3603
30"	50'	2911	1617
30"	70'	3871	2119
30"	90'	4831	2614
36"	25'	1818	1118
36"	45'	2858	1678
36"	60'	3638	2096
36"	100'	5718	3214

For conveyors longer or shorter than those listed above, add or deduct the following per foot prices according to belt width. Prices include belting.

For 14" belt	$16.84 per foot
For 16" belt	18.04 per foot
For 18" belt	19.24 per foot
For 20" belt	20.37 per foot
For 24" belt	21.78 per foot
For 30" belt	24.75 per foot
For 36" belt	27.95 per foot

BONDED TROUGHING IDLER CONVEYORS ARE ALSO AVAILABLE WITH TRUSS TYPE CONSTRUCTION. WRITE FOR DESCRIPTIVE INFORMATION AND PRICES.

NEW CONVEYOR BELTING SAVE UP TO 25%

Heavy duty 4-ply, 28 oz. duck ⅛" top rubber cover by 1/32" bottom cover 12# to 15# average friction pull; 800# to 1000# average cover tensile rubber belting having high tensile strength, tough cotton duck, strong carcass and proper flexibility. For heavy boxes, bags and bulk materials. Troughs easily. Famous brands at deep cut prices. Fresh stock.

Width	Ply	List Price	Sale Price
14"	4	$3.52 foot	$2.83 foot
16"	4	3.96 foot	2.97 foot
18"	4	4.38 foot	3.29 foot
20"	4	4.83 foot	3.80 foot
24"	4	5.68 foot	4.26 foot
30"	4	6.97 foot	5.21 foot
36"	4	8.26 foot	6.18 foot

A high grade of heavy duty 4 and 5-ply, 28 oz. duck, ⅛" top rubber cover x 1/32" bottom rubber cover, 16# to 19# average friction pull, 2500# to 3000# average cover tensile belting. This belt is for more severe service, high tonnages and abrasion resistance. For handling stone, mineral ores, concrete, cement, coal and other similar materials, both wet and dry. Belt has molded rubber edge.

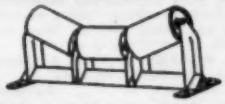
Width	Ply	List Price	Sale Price
16"	4	$4.71 foot	$3.46 foot
18"	4	5.23 foot	3.83 foot
20"	4	5.73 foot	4.37 foot
24"	4	6.74 foot	4.94 foot
30"	4	8.28 foot	6.07 foot
24"	5	7.90 foot	5.78 foot

The following belts are 5-ply, 32 oz. duck:

Width	Top Cover	Bottom Cover	List Price	Sale Price
24"	1/8"	1/16"	$ 8.56 foot	$ 6.42 foot
30"	1/8"	1/16"	10.52 foot	7.89 foot
36"	3/16"	1/16"	14.21 foot	10.66 foot

Other widths, plies, duck weights and cover thicknesses available at low prices. Write for Free Sample.

NEW IDLERS AND RETURN ROLLS 25% BELOW LIST PRICE



3-roll, 5" diameter Troughing Idlers for:			
14" belt	$18.50	24" belt	$21.25
16" belt	19.25	30" belt	22.00
18" belt	20.50	36" belt	22.75
20" belt	20.75	48" belt	25.50
1-roll, 5" diameter Return Idlers for:			
14" belt	$7.25	24" belt	$ 8.50
16" belt	7.50	30" belt	9.50
18" belt	8.00	36" belt	10.00
20" belt	8.25	48" belt	11.50

All steel. Interchangeable with other well known makes. Furnished with easily replaceable pre-lubricated sealed ball bearings. Also, can be furnished with greasable type Alemite Fitted bearings at slight additional cost. Maintenance is negligible. Bonded Rubber Disc Impact Idlers also available from $61.00. Write For Bulletin #1138.

NEW BONDED® FEEDERS

Bonded HDF-18 Heavy Duty Feeders were especially designed for abrasive materials such as Ore, Rock, Crushed Stone, Gravel, Sand, Clinkers, Abrasive Volcanic Ash and Rock. Abrasion Resistant Alloy Steel Plate is used for all parts that contact the material. Feeders are process control instruments as well as material movers and help to prevent screens, crushers, grinders, etc., from being run empty, choke fed, or overloaded. Capacities to 250 TPH. *Write for Bulletin #1182.*

Priced from $595.00

BUILD IT YOURSELF WITH BONDED CONVEYOR PARTS & ACCESSORIES

Return Belt Guide Idler $11.75

Carry Belt Guide Idler $14.50

Head & Tail $149.00

Self-Aligning Idler $60.75

Flat Roll Idler $13.50

Holdback $99.00

YOU ARE WELCOME to Visit the Bonded Factory Any Time.

Wing Pulley $71.00

Screw Takeup and Frame $30.25

Rubber Disc Impact Idler $61.00

1 H.P. Speed Reducer $59.50

More than 5,000 Mines & Quarries Have Modernized with Bonded Equipment.

BONDED SCALE AND MACHINE COMPANY

PHONE: Hickory 4-2186, Days
110 BELLVIEW

WRITE FOR FREE CATALOG AND PRICES

Mfrs. of Scales, Conveyors, Conveyor Parts, Idlers, Vibrating Screens, Crushers and Feeders

PHONE: AX. 1-2213, Evenings
COLUMBUS 7, OHIO

EXECUTIVE SALES MANAGER

Experienced Sales Manager required by an important company in Western Canada. To be responsible for developing and building up a substantial market. Must have a satisfactory educational background and management level experience in sales relating to the cement industry or similar industries —Age 35 to 45—Definitely attractive position requiring a reliable man. Applications will be dealt with in strict confidence.

P. O. Box No. 774 Calgary, or 681 Vancouver

FOR SALE

GRANITE ROCK DEPOSITS

QUARRY STRIPPED AND READY TO OPERATE

EXCELLENT LEASES

WRITE:

BOX PQ-1232 c/o PIT AND QUARRY PUBLICATIONS
431 S. Dearborn St. Chicago 5, Ill.

WANTED

Komarek-Greaves briquetting machine. Will consider any size and condition.

Box PQ-1013 c/o PIT & QUARRY PUBLICATIONS
431 S. Dearborn St. Chicago 5, Ill.

WANTED

Geologist with engineering experience by a large cement company. State education, experience and salary desired. Must be willing to travel.

Box PQ-1222, c/o PIT & QUARRY PUBLICATIONS
431 S. Dearborn St. Chicago 5, Ill.

WANTED

Mechanical Engineer needed by large cement company. Opportunity for training and advancement. Write, giving complete details of education, experience and salary desired. Confidential.

Box PQ-1212, c/o PIT & QUARRY PUBLICATIONS
431 S. Dearborn St. Chicago 5, Ill.

WANT TO BUY RAYMOND MILL

Number 5057 Hi Side with whizzer. Complete with 220/60 drives, cyclone, dust collector, etc. Must be in good condition. Please state full details including price and accessibility.

BOX PQ-2043 c/o PIT & QUARRY PUBLICATIONS
431 S. Dearborn St. Chicago 5, Ill.

JAW CRUSHERS—6" x 3" to 60" x 48"

Before buying or selling any
FARREL-BACON JAW CRUSHERS
It will pay you to consult

BACON-PIETSCH Co., Inc.
Engineers & Manufacturers Send for Catalogue
Montclair, N. J.
22 Park Street

Machine Shop Facilities
FEEDERS
Conveyors, Screens, etc.

WANTED

Good Used 18" & 24" Trough Idlers, any amount.
Jaw Crushers, all sizes.
Gearmotors 3 to 15 H.P.
Late Model Vibrating Screens.

FOR SALE

700 KW Generator Set, Diesel.
350 KW Generator Set, Diesel (2).
84 KW Generator Set, Diesel.
Seco Screen, 4x14, 3 deck.
Seco Screen, 4x10, 2 deck.
Seco Screen, 4x8, 2 deck. (3)
Revolv. Screen, 48" x 20', trunnions.
Niagara Screen, 18" x 72", 1 deck.
Pennsylvania Hammermills, SXT-14, with 450 H.P. GE Motors (2 available).
Dodge Lever Type Jaw Crusher 9" x 15".
Climax Jaw Crusher 10" x 20", new jaws.
Champion Jaw Crusher 12" x 26".
Acme Jaw Crusher 10" x 18".
S-A Hammermill, Knittel Type.
10" Enclosed Elevator, Belt.
8" Enclosed Bucket Elevator.
6" Enclosed Bucket Elevators (2).
Conveyor Belt 36" x 311', 5 ply.
Misc. Size Large Conveyor Pulleys.
New Idlers, 18" and 24".
Trough Idlers, antifriction, 48" & 42".
36" Trough Idlers, 5 roll type (69).
Screw Conveyor & Parts, 6" to 16".
Telsmith Sand Rewasher 28" x 12'.
Small Gasoline Water Pumps.
Westinghouse Flexarc Portable gas driven Welder on Pneumatics.
SACO Speed Reducers, 4 to 60 H.P. (9)
Parallel Shaft Reducers, 25-150 H.P. (11).
Wright 8 Ton Chain Hoist.
15 Ton Stiffleg Derrick, 110' Boom.

G. A. UNVERZAGT & SONS INC.
136 Colt St. Irvington 11, N. J.

POSITION WANTED

Quarry Superintendent. Age 43. Married. 20 years experience, Quarry Supervision. Available at once. Reply:

JOHN A. HOLMES
321 West Ravine Road Kingsport, Tenn.

WANTED TO BUY
ROTARY DRYERS
ROTARY KILNS
BALL & ROD MILLS
DIESEL LOCOMOTIVES & CRANES

R. C. STANHOPE, INC.
60 E. 42nd St., New York 17, N. Y.

DEWATERING CONES

We need 6 cones, large size. Prefer H. B. Large Co. cones or equivalent, but will consider other makes.

WINNIPEG SELKIRK SAND CO. LTD.
201 Avenue Bldg. Winnipeg, Man., Canada

CATERPILLAR DW-10 SCRAPERS

Two, Caterpillar DW-10 Scrapers, hydraulic controls, old but in good running condition. These units more than worth the price for the parts involved not to mention working life. Would make good rubber tired tractor for pulling roller.

$3,750.00 Ea. Both $7,000.00
FOB Nashville, Tenn.

EUCLID-TENNESSEE, INC.
720 Murfreesboro Rd.
Nashville, Tenn.
Tel. ALpine 6-1648

WANTED

One 18" x 36" or 24" x 36", McClanahan Single Roll Crusher with steel frame.

ROANOKE-WEBSTER BRICK CO. INC.
P. O. Box 780 Roanoke, Va.

FOR SALE

Ready Mix—Sand & Gravel Business in Northern Michigan. Complete equipment including 2 Bedroom Home. Serving 40,000 population. Also several large industries. No competition. Reply to:

Box PQ-1093 c/o PIT & QUARRY PUBLICATIONS
431 S. Dearborn St. Chicago 5, Ill.

FOR SALE or RENT

1—Full Revolving Electric Gantry Crane, 440-60-3.
1—Full Revolving Steam Gantry Crane, 40 tons capacity.
1—Full Revolving Steam Crane, 60 tons capacity, for barge or gantry mounting.
1—955-A P&H Diesel Crane, with Fairlead, only 400 hrs.
2—250' Car Floats or Barges.
1—Steel Stiff Leg Derrick, 25 tons capacity, 80' boom. Complete with electric hoist.
1—220' x 34' x 10' Wood Barge.
1—80' x 32' x 10' Wood Deck Scow.
2—Steel Barges 210' x 55' x 10'.
20-Pontoon Float Bridges 5' x 5' x 7'.
4—5½ yd. Rex Truck Mixers on 10 wheel Macks.
1—#1 Vulcan Pile Hammer.
1—#5-S McKiernan-Terry Single Acting Pile Hammer.
2—25 ton P. & H. Truck Cranes
2—100 ton Steel Stiff Leg Derricks with 150' booms, and with three-drum diesel hoists with independent swingers. Guaranteed equal to new and available immediately.

WILLIAM P. SWIFT
P.O. Box 174 Springfield, Pa.
Kingswood 3-8999

LIQUIDATION

Baltimore, Maryland

5—Bartlett & Snow 8½' x 35', 7' x 30', 6' x 30' direct heat Rotary Dryers complete with feeders, blowers, motors, 304 SS Clad 17' from feed end.
1—Bartlett & Snow 6' x 30' direct heat Rotary Dryer, lifting flights and shell 405 SS Clad, complete with feeder, blowers and motor.
1—Hardinge 6' x 48" Conical brick lined Pebble Mill with 30 HP motor, disc feeder and fan.
1—Pennsylvania Reversible Hammer Pulverizer with 50 HP motor.
1—Raymond 16' dia. single whizzer Mechanical Air Separator with 50 HP motor.
4—Tyler Hummer 4' x 15', 3' x 15', Type 38 single deck Screens with Thermionic Units.
1—Tyler Hummer Screen 20" x 5'8" Junior Tandem with Thermionic Unit.
4—Link Belt totally enclosed Bucket Elevators 28' to 55' centers, 8" x 5" buckets, motor driven.
4—Bartlett & Snow totally enclosed Bucket Elevators 29' to 55' centers, 14" x 7" buckets, motor driven.
150 ft. of Screw Conveyor 9", 12" and 18" dia. with steel troughs and covers.
1—500 Ton Rectangular Bin with cone bottom.
1—Rectangular Two-Compartment Bin 22'8" long x 20'6" wide x 18' deep.

Representative on Premises
Your Inspection Invited

BRILL Equipment Company
2401 Third Ave. New York 41, N. Y.
or
4101 San Jacinto St. Houston 4, Texas

FOR SALE OR RENT

1—Unused 25-ton Wiley Model E Steel stiffleg derrick for hook work. 60' boom, 12' bullwheel, rated 25 ton @ 38' or 10 ton @ 50'. Wt. 26,000#.

1—20-ton American Model 836 steel stiffleg derrick #195016. 50' boom, 12' bullwheel. Rated 26,000# @ 48'.

1—American Terry Model 1-75 Steel Erectors Guy Derrick, 85' mast, 75' boom. Rated 15-ton @ 30' radius.

1—100 KW Ideal AC diesel generator 127/220/230/460/440 volt, 50 or 60 cyc., 3 ph. Equipped with Hercules DNX 6 diesel eng. #1051082. On steel skids. Wt. 16,170#.

1—76 HP Clyde frame 5 3-drum diesel hoist with attached swinger. Rated 8000# @ 250 FPM. With International Diesel eng. Wt. 11,500#.

1—100 HP 3-drum American Model 100-3D diesel Hoist with attached swinger. Rated 10,000# @ 240 FPM. With 100 HP Caterpillar diesel engine Model D 8800 with 2-cyl. gas. starting engine. Wt. 19,275#.

4—8-ton Standard Gauge Locomotives: 3 Brookville, 1 Plymouth.

2—10-ton Plymouth Standard Gauge Diesel Locomotives Model BFA.

Write for New Stock List No. 456

EQUIPMENT CORPORATION OF AMERICA

CLIFTON HEIGHTS, PA., Box P-606, Sub. of Phila. MAdison 6-2200
GROVETON, PA., Box 43-P, Sub. of Pittsb. FEderal 1-2800
CHICAGO 4, ILL., 327-P So. LaSalle St. WAbash 2-4681
NEW YORK 7, N.Y., 30-P Church St. WOrth 2-9636

COMPRESSOR DIRECTORY

World's Best Rebuilts

138 CFM	100 PSI	Ingersoll ES	
278 CFM	125 PSI	Chicago Air Cooled	
234 CFM	100 PSI	9 x 9 Worthington HB	
234 CFM	100 PSI	9 x 9 x 9 CP Steam (New)	
254 CFM	115 PSI	10 x 10 Worthington H	
495 CFM	100 PSI	12 x 11 Ing. ESI	
502 CFM	125 PSI	12 x 13 Chicago T-B	
528 CFM	100 PSI	14 x 12 Ing. ERI	
552 CFM	100 PSI	13—8 x 12 Ingersoll XRB	
593 CFM	100 PSI	13½—6 x 8 Ing. XRB	
686 CFM	100 PSI	14 x 13 Chicago T-B	
868 CFM	100 PSI	17—10 x 12 Chic. OCE	
1721 CFM	100 PSI	Ingersoll PRE-2	

23—14 x 16 With 500 HP Synchronous Motor
60 to 600 CFM Portables—Rotary or Reciprocating

AMERICAN AIR COMPRESSOR CORP.
BOX 32
NORTH BERGEN, N. J.
Telephone UNion 5-4848

FOR SALE

9—Rotary Dryers & Kilns: 3'x15'; 3'x24'; 42"x25'; 4'6"x40'
2—Rotary Coolers: 104"x30'; 104"x70'
6—BALL MILLS: Allis Ch. 6'x16'; 5'x9'; 6'x5'; Patterson 5"x22', UNUSED
6—MINE HOISTS: Single and Double Reduction
1—Penna. Crusher Ring Type Granulator, Trojan size K3-24, 40 HP
1—Sturtevant 8 x 10 Jaw Crusher

PERRY EQUIPMENT CORP.
1414 N. 6th St. Phila. 22, Pa.
STevenson 4-3505

Equipment Located In All Parts of The Country

TWO—4' SYMONS STANDARD CONES, COARSE BOWLS.
42" SUPERIOR McCULLY GYRATORY CRUSHER.
42 x 48 R.B. PIONEER & FEEDER, USED 14 MOS.
TWO—5 x 14 MARCY ROD MILLS.
30 x 42 Pioneer primary, unused, $86,000 value for $68,000. 25 x 40 Austin Western with feeder, grizzly & 100 hp. 32 x 40 Austin Western jaw. 4¼' & 3' Symons, 36" Telsmith cones. A-C 322-B Hydrocone. 30" Superior McCully, 150 hp. 36" Superior McCully. 16-A & 10-A Telsmiths. #37½ & 38½ Kennedy van Saun. 3630 Dixie hammermill. 5050 Cedar Rapids impactor. 3030 impactor port. plant. Pioneer 54 x 24 double roll. Pioneer 54 x 24 triple roll portable plant. Rod mills 9½ x 12, 6½ x 14½. 6 x 7 feeder with grizzly. 10½ x 101 Traylor kiln. Joy continuous miner, low type. 50 ton/day hydrated lime plant. 125 TPD flotation mill. Link Belt 2½ yd. shovel & three 85 ton Euclids, also 600 cfm compressor and bin and conveyor equipment all located in Southeast.

STANLEY B. TROYER EQUIPMENT COMPANY
Box 97 phone 500 Crosby, Minnesota
New List of Surplus Equipment Now Available.

FOR SALE

Pulverizing Plant complete for producing agricultural lime dust or asphalt filler, consisting of:

1 Allis Chalmers 7' x 24' Compeb mill complete with motor and magnetic clutch.
2 6' x 60' Dryers.
1 Sturtevant Air separator.
1 Fuller Kinyon pump for pumping dust to hopper or barges.

In addition we have other equipment in this plant such as screw conveyors, bucket elevator, screens, etc.

NEW YORK TRAP ROCK CORPORATION
For information write:
230 Park Avenue, New York 17, N. Y.

QUARRY EQUIPMENT

Cedarapids 1036-2416 Junior tandem. Rebuilt.
Cedarapids single pass plant with 1024 jaw.
Cedarapids BBB 1036 scalping unit on rubber.
30" x 82' belt conveyor with 15 H.P. wrap drive.
36" x 4'6" apron feeder.
Williams 20" x 33" pulverizer.
12" x 35' inclined open elevator. New.
Seco 3' x 10' triple deck vibrating screen. Reconditioned.
27½ ton, single-compartment, 8' x 12' bin.
60-ton, two-compartment, 8' x 18' storage bin with clam gates.
100-ton, two-compartment, 13' x 23' bin.
Special bins to your specifications.
Conveyors—18"—24"—30"—36". Also conveyor belting.
18" diameter x 20" face magnetic pulley.

SHOVELS AND CRANES

Lorain 820 2-yard diesel shovel-crane-drag. Reconditioned.
P & H 855 2-yard diesel powered shovel-drag.
Lorain 75A shovel, 1¼-yard.
Lorain L50K 1-yard diesel crane. Excellent.
Unit 1020 ¾-yard diesel powered shovel-crane.
Lorain TL25KS ¾-yard gas powered backhoe.
Link Belt LS-85 ¾-yard diesel powered shovel-drag.
Lima 54 Paymaster ¾-yard diesel shovel.
Lorain Byers 83 ¾-yard diesel powered backhoe.
Lorain Byers 83 ¾-yard gas powered clam-crane.
Lorain L-40 ¾-yard diesel powered clam-crane-drag.
Lorain TL25KS ¼-yard gas powered backhoe.
Buckeye 70 ¾-yard gas powered shovel-crane.
Lorain L-15, ½-yard gas powered backhoe.
Bucyrus-Erie 10B ⅜-yard shovel, hoe, crane.
Link-Belt LS-50 backhoe, gas power.
Lorain MC504-W crane clam. Reconditioned.

TRACTORS, TRUCKS, SCRAPERS, ETC.

1—Euclid 18-yard twin engine scraper. Very good condition.
1—Euclid 15.5-yard Scraper. Excellent condition.
6—Euclid 13-yard bottom dumps.
2—Euclid tractors with 3200 gallon water tank semi-trailer.
1—Euclid Model 3BV loader.
3—Caterpillar DW-10 scrapers. Reconditioned.
1—Wooldridge 7-11 yard scraper.
1—Caterpillar DW-10 with Athey side dump.
1—International TD9 crawler tractor.
1—International TD18 with Bucyrus-Erie bulldozer blade. Excellent condition.
2—Allis Chalmers HD-10 Tractors with Hydraulic Bulldozer Blades.
1—Caterpillar D-7 with cable bulldozer blade, winch.

DIESEL POWER UNITS

Cat. D7700, 74 H.P. at 1000 RPM. Rebuilt.
Cat. D13000, 145 H.P. at 1000 RPM. Rebuilt.
GMC 671, 6-cylinder. Rebuilt.
GMC, twin diesel. Rebuilt.
GMC 3021C, 3-cylinder. New.
GMC 371RC 38A, 3-cylinder. Rebuilt.
International UD18A, 6-cylinder. Reconditioned.

AIR COMPRESSORS

105 cu. ft. Ingersoll-Rand gas portable.
160 cu. ft. Ingersoll-Rand gas portable.
210 cu. ft. Gardner-Denver gas portable.
500 cu. ft. Gardner-Denver diesel portable.
600 cu. ft. Gardner-Denver diesel portable.
500 cu. ft. Ingersoll-Rand, Waukesha Power.
420 cu. ft. Gardner-Denver two-stage stationary.
312 cu. ft. Ingersoll-Rand Type 40 stationary, electric. Practically new.

ASPHALT PLANT

Barber-Greene Model 848 with drier, graduation unit, etc.

L. B. SMITH, INC.
CAMP HILL, PA.
Phone Harrisburg REgent 7-3431

FOR SALE

One Caterpillar Diesel 8 cyl. Model D-17000 Power Unit, S/N 3-S-828-SP, Type X complete with Twin Disc enclosed clutch with extended 3-15/16" dia. shaft for V belt drive, good radiator, mounted on steel skid with good gas starting engine. This unit is in good condition, having new type main and connecting rod bearings.

One Symons Vibrating Bar Grizzly Screen for heavy duty scalper work. Used for two years only. Ideal for primary crusher feeder, 42" x 5' long.

One Robbins Vibra Feeder, Style VF-3, Size 24" x 72" long. Almost new.

One Allis Chalmers 100 H. P., 60 cycle, 440 volt, 690 RPM, type ARJ, vertical electric motor in good operating condition. Ideal to power A.C. 10" Newhouse crusher.

PURCHASING DEPARTMENT - THE BUFFALO SLAG CO., INC.

866 Ellicott Square Building - Buffalo 3, New York - Tel: WAshington 8107, Buffalo, N. Y.

SHOVELS — DRAGLINES DRILLS CRANES — EUCLIDS

625 Page Diesel Drag, 160', 9 yard
6160 Monighan Drag, 160', 8 yard
625 Page Diesel Drag, 150', 10 yard
4500 Manitowoc Drag, 140', 4½ yard
621-S Page Diesel Drag, 135', 6 yd.
7200 Marion Diesel Drag, 135', 5¾ yd.
621-S Page Diesel Drag, 125', 7½ yd.
200-W Bucyrus Monighan Drag, 125'
7-W Monighan Elec. Drag, 120', 7 yd.
618 Page Diesel Drag, 120', 5 yd.
5-W Bucyrus Monighan Drag, 120', 5 yd.
2400 Lima Dragline, 110', 6 yard
1055 P&H Dragline, 90', 4 yd.
1201 Lima Dragline, 90', 3 yard
955 P&H Dragline, 90', 2½ yd.
3500 Manitowoc 60 ton Crane
802 Lima Cranes
4161 Marion Comb. Elec. Drag & Shovel
100-B Comb. Electric Drag & Shovel
2000-B Manitowoc Comb. Shovel & Crane
5480 Marion Electric 15 yard Shovel
1600 P&H Electric 6 yard Shovel
2400 Lima 6 yard Standard Shovel
4500 Manitowoc 4 yard H. L. Shovel
1201 Lima 2½ yd. H. L. Shovel
3500 Manitowoc 2 yd. H. L. Shovel
3000-B Manitowoc 2 yd. Shovel
955 P&H Standard Shovel
Unit 1020 ¾ yard Shovel—1 yr. old
600 Reich Heavy Truck Mounted Rotary Air Drills (Both Lever Arm and High Mast)
Mayhew Rotary Truck Mounted Air Drills
Portadrill Truck Mounted Air Drill
Euclid Trucks—Bottom Rear Dump

FRANK SWABB EQUIPMENT CO., INC.
313 Hazelton Nat'l Bank Bldg.
HAZELTON, PA.
GLadstone 5-3658

CYLINDER HEAD REBUILDING SERVICE

CRACKS REPAIRED
MACHINED READY-TO-INSTALL
VALVE GRINDING
PRESSURE AND MAGNETIC TESTING

INTERNATIONAL
CATERPILLAR
G. M. C.
BUDA
etc.

GAS AND DIESEL

CHAPIN CYLINDER HEAD CO.
9 miles west of Jacksonville in
CHAPIN, ILL. PHONE #3

NEW SURPLUS REPAIR PARTS SHOVEL & CRANE

25% Discount—All Mfgs.

CONTRACTORS SERVICE CO.
P.O. Box 561 Riverside, Calif.
Phone: OVerland 9-2921

HIGH PRESSURE JET HOSE

5" 400 lb. PSI working 1600 lb. Test
Triple Clamped, Nipples, and HD Flanges
Assorted Lengths 6', 10', 25', 30'
Sale or Rent

GRIFFIN WELLPOINT CORP.
881 East 141st Street New York 54, N. Y.
MElrose 5-7704

For Best Results
Advertise In
PIT and QUARRY'S
Broadcast Section

"The Marketplace of the Industry"

IMMEDIATE DELIVERY

New Equity standard steel 45' tugs. Diesel powered, single and twin screw, 200 to 400 H.P. also, 55' tugs.

Call or wire today

EQUITABLE EQUIPMENT CO. INC.
410 Camp St. New Orleans 12, La.

HERE ARE YOUR BEST BUYS!

Five Cranes & Shovels

Marion	"331"	¾ yd. Shovel or Dragline.
Insley	"K-12"	½ yd. Trench Hoe or Dragline.
Lorain	"TL-20"	½ yd. Dragline or Trench Hoe, Reconditioned.
Unit	"514"	½ yd. Trench Hoe, fair condition.
Quick-Way	"S"	1/3 yd. Hoe & Crane (New 1953), mounted half track. Shovel Attachment complete for LS-85 (¾ yd.)

NINE TRANSIT MIXERS

Jaeger 3 yd. (4¼ yd. Agitator) Hi-Discharge, 1945-1947 Models, one mounted on 6-Wheeler, one unmounted.
Smith 3 yd. (4¼ yd. Agitator) Hi-Discharge, unmounted.
Rex 3 yd. (4¼ yd. Agitator) Hi-Discharge, mounted F-8 Ford Tandem.
Rex 3 yd. (4¼ yd. Agitator) Hi-Discharge, mounted Diamond T Tandem Truck. 1951 Models.
Rex 3½ yd. Adjusta-Wate Hi-Discharge, mounted GMC "500" Tandem. 1½ years old.
Rex 4½ yd. Hi-Discharge (2), mounted I-H "L190" Tandem Axle Trucks. All new April, 1952.
Rex 5½ yd. Demonstrator Adjusta-Wate Mixer mounted RF 192 International Tandem Axle Truck.

FIVE END LOADERS

Caterpillar	"D-6"	Diesel Tractor, Traxcavator Loader, Cab, 1950 model—excellent.
Caterpillar	"D-6"	Diesel Tractor w/Traxcavator. Needs some track repairs.
Cletrac	"DGH"	Used Gas Crawler w/Drott Hi-Lift 1½ yd. Front End Loader. Needs some track work. Make Offer!
Hough	"HM"	1½ yd. Four-Wheel Drive Payloader, Reconditioned.
Pettibone	"175D"	Demonstrator 1¾ yd. (Struck) Tractor Shovel, 4-wheel drive, power shift transmission, planetary axles. New Guarantee

MISCELLANEOUS

Haiss	"75C"	Used Bucket Loader, crawler-mounted.
Barber-Greene	"522W"	Bucket Loader, rubber-tired, reduced to sell.
Chicago Pneumatic	"60"	Reconditioned portable Compressor. We have 3 of these from $800. to $1250.
Universal	"2036"	R.B. Jaw Crusher, skid-mounted, w/Apron Feeder.
Bayport	23 yd.	New Aggregate Bins.
Caterpillar	"D318"	Diesel Electric Generator Set.
Caterpillar	"D13000"	Diesel Power Unit. 50 KW.

NOTE: All This Equipment Located in our Yard.

EIGHMY EQUIPMENT COMPANY
120 S. Pierpont
Rockford, Illinois Phone 4-6706

4-NEW G.E. AC GENERATORS

156 KVA, 125 KW, at 8 P.F. 127/220/480/3/60/1800 RPM; type ATI; Model 34G114; frame 954-E; 2 ball bearing; short shaft; direct connected exciter; w/new G.E. voltage regulator; can be used as 40 or 50 cy.

List. $6905.00 **Net. $2750.00 ea.**

Rentals — Sales

We Want
Your Surplus
Equipment

Midwest Diesel Power Co.

1270 W. Augusta Blvd. - Chicago 22, Ill. - EVerglade 4-4511

YOUR PORTABLE GENERATOR HEADQUARTERS

MANITOWOC SHOVEL FRONTS
For Models 3000 - 3500

1—Standard Front—27′ Boom, 18′ Sticks, 2½ Yd. Dipper.
1—Medium Front—35′ Boom, 27′ Sticks.

Complete With Retract Mechanism

ANDERSON EQUIPMENT COMPANY
Box 1737 Pittsburgh 30, Pa.
Phone: LEhigh 1-6020

7—4′x8′ Tyler Vibrating Screens
42″ Belt Conveyor—LIKE NEW
4′ Stdg. Symons Cone Crushers
42″ Superior McCulley Gyratory
6″ & 8″ Sand & Gravel Pumps
147 HP Diesel Power Unit on skids
BOILERS—almost any size or type

H. & P., 6719 Etzel, St. Louis 14, Mo.

DEPENDABLE USED MACHINES

Special: Harris Power Horse, 4-wheel drive, 2½ yd. bucket; used only 3 Months.

30″x200′ conveyor
30″x85′ conveyor
42″ Oro feeder
Telsmith 4x12 screen
16x16 roll crusher
B-G #358 hopper car unloader
Telsmith 30″ recip. feeder
Pioneer port. gravel plant
American 20 HP car puller
Pioneer-Mesabi 5x12 screen
NW 80D dragline
A-W Badger shovel
NW 1 yd. crane
Bay City ⅝ yd. crane
Lessman loader

This equipment rebuilt in our modern plant by expert mechanics. Come see it!

10004 Southwest Highway **TRACTOR & EQUIPMENT CO.** **Oak Lawn, Ill.**

- **SHOVELS**
- **TRUCKS**
- **DRAGLINES**
- **DRILLS**

4500 Manitowoc Dragline, 4 yd., 140′ boom, Cat. diesel engine.

80-D Northwest 2½ yd. Standard Shovel, Murphy diesel engine. Excellent.

54-B Bucyrus Erie Dragline, 2½ yd., 85′ boom, Buda diesel. Rebuilt.

54-B Bucyrus Erie 2½ yd. Standard Shovel, Buda diesel. New 1954.

3500 Manitowoc Dragline, 2½ yd., 80′ boom, D-17000 Cat. Engine. Rebuilt.

903 Osgood Dragline, 2 yd., 70′ boom, Cat. engine. Rebuilt. Bargain $12,500.

1201 Lima Dragline, 3 yd., 85′ boom, Cummins diesel, 100 hours.

46TD Euclid rear dumps, 22 ton, new 1953 & 1954.

TD14A Int. diesel 2 yd. front end loader. New 1954. Bargain.

42T Bucyrus Erie diesel 9″ Well Drill.

58BH Joy Champion diesel 7⅜″ Rotary Drill.

Plus many machines too numerous to mention.

FRANK FAMALETTE EQUIPMENT CO.
P. O. Box 325
Hazleton, Penna. **GL 5-4708**

FOR SALE or RENT

65 ton Whitcomb Diesel Electric Loco.
45 ton General Electric Diesel Elec. Loco.
10 ton Plymouth Diesel Loco. New 1950.
Christian 2D Hoist & Swing, 138 HP Buda Diesel Engine. 15,000# SLP.
2 100 HP Lucey Portable Horiz. Fire-Box Boilers. 200 lbs. Oil Fired. ASME.
30 ton Wiley Stiffleg Derrick. 80′ Boom
1700 CFM Joy Elec. Air Compressor New 1954
600 CFM 1-R Gyrofle Diesel Compressers
4 yd. P&H 155 Dragline new 1950.

MISSISSIPPI VALLEY EQUIPMENT CO.
1907 Railway Exchange **St. Louis 1, Mo.**

NEW—RAILS—RELAYING

Track Accessories
All prices cheerfully quoted

M. K. FRANK

480 Lexington Avenue - New York City
Park Bldg., Fifth Avenue - Pittsburgh, Penna.
105 Lake Street - Reno, Nevada

KOEHRING DUMPTORS

Three (3) Koehring Dumptors (off the highway) 5¼ yds., struck—6¼ yds., heaped. 16.00x24 and 10.00x20 Tires—70% good. GMC 4-71 Diesel Engines—Excellent condition. These Dumptors are not junkers—GOOD BUYS.

PRICE F.O.B. LOUISVILLE, KENTUCKY

$6,950.00 each

Write, Wire or Phone Jim Waddell

BRANDEIS MACHINERY & SUPPLY CO.
Brook & Warnock Sts. **Louisville, Ky.**
MElrose 7-4741

EQUIPMENT LOCATED
GA. - N. Y. - CALIF. - OHIO - TEXAS - ILL.

GRINDING MILLS

BALL MILLS—3′x4′, 4′x8′, 5′x8′, 5′x9′, 5′x10′, 6′x5′, 6′x7′, 6′x8′, 6′x10′.
HARDINGE MILLS—4′6″x16″, 6′x14″, 6′x22″ 6′x36″, 7′x22″, 8′x36″, 8′x48″, 10′x48″.
ROD MILLS—12″x24″ LAB., 3′x10′, 4′x8′, 4′x9′, 4′x14′, 5′x8′, 5′x10′, 5′x14′, 6′6″x14′6″.
TUBE MILLS—5′x14′, 5′x22′, 5′6″x22′, 6′6″x21′.

HAMMERMILLS

JEFFREY 36″x42″, 42″x36″, 42″x48″, 42″x24″.
PENNSYLVANIA—2-8XR-100 TPH-THOR 8XT 12-48″x54″.
UNIVERSAL—No. 4, 36″x26″, 3240 IMPACTOR.
CEDAR RAPIDS—3033.
WILLIAMS—GA-60-44x60 FEED OPENING.

APRON FEEDERS

54″x10′3″—54″x16′—3′x12′.

FILTERS—SEPARATORS—CLASSIFIERS

OLIVER DRUM—8x10′, 12′14′, 14′x18′, 11′6″x18′.
DORR RAKE CLASSIFIERS—5′x25′, 8′x38′, 12′ x31′, 14′x30′.

DORR BOWL RAKE—3′x24′x12′, 5′x30′x26′, 18′ x24′x28′.
WOODS SAND CLASSIFIER—72″, 96″.
CONVEYCO SAND CLASSIFIER—4′x10′.
17 THICKENERS—100′, 80′, 36′, 24′, 16′ & 12′.
20″x15 EAGLE SINGLE SCREW COARSE MATERIAL WASHER.

ROTARY DRYERS & KILNS

DRYERS—40″x21′, 4′x20′, 6′x40′, 6′x60′, 8′x125′.
KILNS—6′x28′, 6′x7′x80′, 7′x110′, 8′x125′, 10′x 105′.

JAW CRUSHERS

BLAKE TYPE—66″x84″, 36″x48″, 36″x42″, 30″x 36″, 24″x36″, 18″x36″, 16″x32″.
SINGLE SHAFT—25″x40″, 20″x36″, 18″x36″, 10″ x24″.
CAM & ROLLER—24″x40″, 14″x26″, 11″x26″, 10″x20″, 6″x26″.

GYRATORY FINE REDUCTION CRUSHERS

SYMONS—3′, 4′, 5½′.
KENNEDY—19S, 25S, 37S.
SUP. McC.—6″, 10″, 18″ A-C 322B.

GYRATORY PRIMARY CRUSHERS

6″, 10″, 14″, 16″, 26″ & 36″ SUP. McC.—Gates AL. CHAL. 3, 4, 5, 6, 7½, 8, 9, 12K.

CONVEYORS

30″ x 140′, 30″ x 160′ & 30″ x 200′.

STEEL DERRICKS

GUY: 8 TON 85 FT. BOOM, 25 TON 60 FT. BOOM, 15 TON 100 FT. BOOM, 29 TON 115 FT. BOOM, 50 TON 100 FT. BOOM.
STIFF LEG: 5 TON 70 FT BOOM, 15 TON, 100 FT. BOOM, 25 TON 100 FT. BOOM, 75 TON 135 FT. BOOM. 1—5 TON 100 FT. BOOM.

ASPHALT & OIL TANKS

15—8,000, 10,000 & 20,000 GAL. CAP. WITH COILS. 6—10,000 GAL. R.R. CAR TANKS.

RAILWAY CARS

177—DUMP STD. GA.—20, 16, 12, 6 & 4 YD.
36—FLATS—10 TON, 40 TON, 50 TON CAP.
44—TANK CARS—8,000 & 10,000 GAL. CAP.
75—V Dump Cars, 1½ & 3 Yd.

R R CAR DUMPER

150 TON CAP. STD. GA. CAR DUMPERS.

AIR COMPRESSORS—ELECTRIC

198, 420 & 676 WORTHINGTON BELTED.
1302 CFM & 1574 CFM INGER. RAND PRE.-2.
1170 CFM GARDNER DENVER HAE1034-2300 V.
1578 & 2200 CFM—OCE—CHGO. PNEU. ELEC.
3078, 3864 & 5040 CFM Inger. Rand.

DIESEL LOCOMOTIVES

1—25 TON, 1—80 TON GEN. ELECTRIC.
2—25 TON PORTER. 1—65 TON WHITCOMB.

R. C. STANHOPE, INC.
60 E. 42nd St. **New York 17, N.Y.**

SHOVEL CABLE Mill Stocks At Savings

Type SH-A
Type SH-B
Type SH-C
Type SH-D

In addition a complete stock of portable power cables is carried.

Type W
Type G

Every size, all constructions, any voltage is available . . . Mining Machine Cable, Portable Control Cable, Welding Cable, Feeder Cable, & Locomotive Cable.

UNIVERSAL WIRE & CABLE CO.
2927 N. Paulina, Chicago 13, Ill.
Branches:
Houston, Texas & Los Angeles, Calif.

NORTHWEST 80D Shovel #13580, w/Murphy 21 diesel. $33,500 Rental Purchase.
BUCYRUS ERIE 22B Electric Mine Shovel, 1 cy. bucket. New 1951. Yard.
BUCYRUS ERIE 37B Shovel Front, like new. $2000 Yard.
UNIVERSAL Secondary Portable Crushing Plant w/18x30 r.b. rolls & #3 hammermill crushers, 4x12 2-deck vibr. screen, rotovator, 30" conveyors, diesel-electric and diesel power units, on tandem rubber. Overhauled. $17,500 Rental purchase. Yard.
CEDARAPIDS Portable 18x24 r.b. Jaw Crusher Plant, w/plate feeder, vibr. grizzly, underconveyor, Case power, on factory tandem rubber. A1. $6,000.
PIONEER 54x24 Triple Roll Portable Plant w/30" x 27' feed & 30" x 29' discharge conveyors, factory mounted tandem rubber, front dolly, new 1953, weight 69,000 lbs. Excellent. $17,500 Yard.
LIPPMANN Single Unit Portable Crushing & Screening Plant w/apron feeder, 18x30 r.b. Jaw, 30x18 rolls, vibr. screen, rotovator, factory mounted tandem rubber. Good.
AUSTIN WESTERN 25x40 r.b. Jaw Crusher & 42" x 12' apron feeder. Good. $13,500.
CEDARAPIDS Pittmaster Gravel Plant, 10x16 jaw, 16x16 roll, 2½x10 2-deck screen, delivery & reject conveyors, rotovator, GMC diesel power. New 1953, used 1100 hrs. Like new. Price $22,000 Rental Purchase.
CEDARAPIDS Jr. Tandem Plant, w/10x36 Jaw, 24x16 rolls, 42"x10' screen, rotovator, GMC Diesel, on tandem rubber. New 1955, used 4 mos. $37,500.
BARBER GREEN 82A Bucket Loader, excellent. $2850 Yard.
PIONEER 40V Portable Gravel Plant, w/10x36 r.b. Jaw, 40x22 rolls, 4x10 3-deck screen, field conveyors, Cat. D13000 diesel, on tandem rubber. Overhauled. $17,500 Rental Purchase.
CEDARAPIDS 25x40 r.b. Jaw Crusher, reconditioned. $9250.
DIAMOND 15x24 r.b. Jaw Crusher w/electric motor. Good $2500
PIONEER 40x22 Triple Roll crusher, recently rebuilt $8250
UNIVERSAL 40x24 r.b. Double Roll Crusher. Bargain. $3850.
McLANAHAN 36x18 Single Roll Crusher, good. $7000 Yard.
CEDARAPIDS 30x33 Hammermill, excellent. $2750 Yard.
BUCYRUS ERIE 42T Blast Hole Drill & #12 Bit Dresser, used two seasons. Excellent. $17,500 Yard.
GARDNER DENVER D99D Jumbo Drills on truck & tractors. Good. Yard.
ROBBINS 4x10 2-deck Gyrex Screen. A1. $1350 Yard.

WENZEL MACHINERY RENTAL & SALES CO.
565 S. 10th Kansas City, Kans.
Mayfair 1-1710

8' x 125' VULCAN ¾" SHELL RIV. ROTARY KILN

DARIEN CORP.
60 E. 42ND ST. N. Y. 17, N. Y.

KILNS—COOLERS—DRYERS

705-20 Link-Belt Roto Louvre, 88
502-16 Link-Belt Roto Louvre
8'6" x 35' Bartlett-Snow Rotary Dryer
7' x 30' Bartlett-Snow Rotary Dryer
6' x 30' Bartlett-Snow Rotary Dryers (2)
5' x 20' x ¼" welded

PULVERIZERS—MILLS—CRUSHERS

8" x 15" Pacific Jaw Crusher
18" x 18" Jeffrey 1-roll spiked
14" x 16" R. & S. 2-roll spiked
Raymond #1 Pulverizer
Pennsylvania Impact Pulverizer 50 HP
6' x 48" Hardinge Conical Mill
20" x 12" Jeffrey Hammer Style A, NEW
15" x 8" Jeffrey Hammer Style B, NEW

BUCKET ELEVATORS

28' to 53'6" c/c 8x5 buckets (4)
29' to 55'4" c/c 14x7 buckets (4)

SCREENS

Rotex #21, 40" x 84"
Robinson Gyro Sifter 28A
Tyler-Hummer 4' x 15' single deck
Tyler-Hummer 3' x 15' single deck
Universal Roads 18" Cent. Separator
Raymond 16' Single Whizzer

MISCELLANEOUS

47' Screw Conveyor, 15" 2 HP motor
12" Merrick Weightometers
Rotocione Collector, Type W, Size 36
Bin 22'8"x20'6"x4'10" plus 13'3" Cone

►SEND US YOUR INQUIRIES◄

HEAT & POWER CO., INC.
60 East 42nd St. New York 17, N.Y.
MURRAY HILL 7-5280
(Machinery & Equipment Merchants)

FOR SALE

3—10" McCully Gyratory Crushers
3—Traylor No. 412 Type TZ Gyratory Crushers
1—New RCA Metal Detector 10" x 36" aperture
1—20" Traylor Heavy Duty Finishing Crusher
4—Allis Chalmers Gates "D" Crushers, Size 6
1—Traylor Rolls Crusher—30" x 72"
1—Fuller Kinyon System
1—Allis Chalmers Compeb Mill (for Pulverizing Limestone)
1—Covered Steel Barge, suitable for carrying cement
3—Wooden deck Scows
2—6' x 60' Dryers for Pulverizing plant

For Information write:

NEW YORK TRAP ROCK CORPORATION
230 PARK AVE. NEW YORK 17, N. Y.
TELEPHONE MURRAY HILL 9-8500

MANITOWOC SHOVEL

Model 2000-B, With 26' Boom, 22' Sticks, 1¼ Yd. Dipper. Cat. D-13000 Diesel Engine. Serial No. in the 22000's. New 1949.

ANDERSON EQUIPMENT COMPANY
Box 1737 Pittsburgh 30, Pa.
Phone: LEhigh 1-6020

PUMP FOR SALE

1—Ingersoll-Rand Model 10ALV 4210 GPM, 275' Head, Size 10 x 12, 1775 RPM. Can fit with 400 HP 1800 RPM synchronous or induction mtor to customer specifications.

Phone LIMA, OHIO, 2-4710
THE LIMA ARMATURE WORKS, INC.
132 E. Pearl St. Lima, Ohio

LOCOMOTIVES

We own and offer
Subject to prior sale
2—80 ton WHITCOMB diesel electric, 650 HP, new 1944
2—45 ton PORTER diesel electric, 300 HP, new 1942
Full data and prices on request.
May be inspected in operation

PAN AMERICAN ENGINEERING COMPANY
P. O. Box 1709 • Tel. LOgan 8656
Dallas, Texas

FOR SALE

New Meckum 8", R.H. Bottom Discharge Heavy Duty Dredge Pump. Repossessed Equipment. Never Used. Full Manufacturers Warranty. Write or Phone:

J. W. MECKENSTOCK & CO.
Dayton Road Phone 2521
Ottawa, Illinois

SAUERMAN DRAG SCRAPER

Model 3003. Double drum, heavy duty with UD 1091 diesel engine; Crescent 3 cu. yd. scraper bucket; 30' tubular steel mast; rapid shifting bridles; cables for 500' span. Condition perfect. Call or write for pictures and detailed information.

SIOUX ROAD, INC.
500 East 6th Street
Sioux Falls, S. Dak.

SPECIALS

1—New 6½'x150', 48'x125' kilns
1—#6 Williams Hammermill
1—28" Telsmith Intercone Crusher
1—10½" Clyde Dehydrator

KILNS

1—9'x150' Kiln
1—10½'x100' Kiln

DRYERS

1—5'x60'

CRUSHERS

1—36"x42", 24"x36", 18"x36" 12"x24" Jaw Crushers
2—42"x16" Allis-Chalmers Crushing Rolls
2—24"x14" Rogers Iron Works Crushing Rolls. Rebuilt
1—36"x16" rebuilt Sturtevant Rolls
1—24"x12" Farrell Bacon Crushing Rolls. Rebuilt
1—No. 330 Allis-Chalmers Hydrocones
1—6", 10", 16" and 20" McCully Superior Gyratory Crushers
No. 3 up to 12 Gyratory Crushers

BALL, ROD & TUBE MILLS

1—4'x11' Rod Mills
2—5½'x20' and 5'x22', 6'x22' 7'x24' Tube Mills

MISCELLANEOUS

8'x10', rotary Filters

We Make New Dryers, Kilns, Dust Collectors

Have you any machinery that you want to sell?

W. P. HEINEKEN, INC.
50 Broad St. New York 4, N. Y.
Phone Whitehall 4-4236

FOR SALE

3 Koehring Dumptors, serials 2029, 2030, 2299.

write or call

CODELL CONSTRUCTION CO.
WINCHESTER, KY. PHONE 222

FOR SALE
TERMS
Euclids

17 Model 23TDT Euclid Bottom Dumps—New York & Texas, 2 years old $25,000
9 Model 12TDT Euclid Bottom Dumps—Texas & Kansas, 4 years old $18,000, $20,000

MOTOR GRADERS

9 Caterpillar 8T No. 12 Motor Graders—California, Texas, Kansas, New York $5,000 up
3 Caterpillar 9K No. 12 Motor Graders—Kansas, Oklahoma, Texas $1,000 up
1 Caterpillar No. 112 Motor Grader—Kansas $4,500
Austin-Western 99H Motor Graders—Kansas & Texas $1,000 up

SCRAPERS

2 Caterpillar DW-21's—California $16,500 up
6 Caterpillar DW-20's—California & Kansas $17,000

SHOVELS & DRAGLINES

Bucyrus-Erie 22-B Dragline—Texas $15,000
Marion 362 Shovel, Backhoe, Dragline—Oklahoma $25,000

For Further Information:

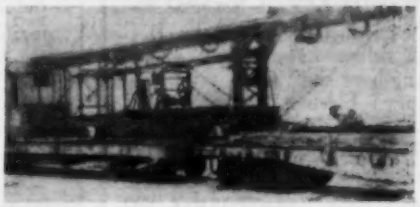
TECON CORP.
202 Davis Bldg. Dallas, Texas
Phone Riverside 8-1441

E. R. FUNK
Res. Phone
Fleetwood 2-8870

W. P. BREWER
Res. Phone
Davis 7-5719

INDUSTRIAL WORKS PILE DRIVER

BOILER AND
TWO DRUM HOIST
WITH
40′ IDLER CAR
AND TENDER



C. G. WYATT MACHINERY CO., INC.
24th and HAYES AVE. CAMDEN 5, N. J.

FOR SALE
One Bucyrus Erie Model 27-T Blast Hole Drill same as new.
Complete with tools ready to go.
FAYETTE LIMESTONE CO., INC.
P. O. Box 32 Washington C.H., Ohio
Phone 27871

RELAYING RAIL
Track Accessories
All Sizes
LEFTON INDUSTRIAL CORP.
General Office: 212 Victor Street
St. Louis 4, Missouri

FOR SALE

1—42″ Superior McCulley Gyratory Crusher
2—4′ Standard Symons Cone Crushers

The above are in excellent condition.

THE WHITE-ORR COMPANY
755 Northwest Blvd.
Columbus 8, Ohio
CApital 4-3451

FOR SALE

1—RAYMOND 6-ROLL HIGH SIDE ROLLER MILL, MODEL 6669 WITH AIR SEPARATOR AND CYCLONES, ALL REQUIRED MOTORS INCLUDING 100 HP AND 200 HP 3 PHASE, 60 CYCLE, 220/440 VOLT MOTORS, ROTARY FEEDER, FURNACE AND OIL BURNER AND ALL PARTS OF COMPLETE INSTALLATION.

CONDITION: EXCELLENT.

R. GELB & SONS, INC.
U. S. 22 UNION, N. J.
MURDOCK 6-4900

FOR SALE OR RENT—EASY TERMS
Rebuilt — A 1 Condition
48B Bucyrus Erie Shovel 2 cy Diesel
Northwest Model 6 Shovel, 1½ c.y.
Caterpillar D8 Bulldozer
WILLIAMS CONSTRUCTION COMPANY
Box 145 Balto. 26, Md. Murdock 6-8000

6—DORR 12′ x 31′ 6″ CLASSIFIERS
6 DORR TYPE QSFX, QUARDRUPLE RAKE CLASSIFIERS, 12′ WIDE, 31′6″ LONG WITH 20 HP 440 V. MOTORS.
R. C. STANHOPE, INC.
60 E. 42nd St. New York 17, N. Y.

FOR SALE
EUCLID REAR DUMP TRUCKS

Bucyrus-Erie Draglines, 2½ yd. to 8 yd.
Bucyrus-Erie Shovels, ¾ yd. to 8 yd.
Northwest Draglines, ¾ yd. to 2½ yd.
Northwest Shovels, ¾ yd. to 2½ yd.
Manitowoc Draglines, 2½ yd. to 5 yd.
Manitowoc Shovels, 2½ yd. to 5 yd.
Marion Shovels & Drags, 4 yd. to 9 yd.
Lima Shovels & Drags, 1½ yd. to 8 yd.
Osgood Shovels & Drags, 1½ yd. to 2½ yd.
Caterpillar Graders & Dozers.
Hi-Lift Shovels.
P&H Truck Mtd. Crane & Hoe, ⅜ yd.
2400 Lima Shovel front attachment.
4500 Manitowoc Shovel front attachment.
6″ and 9″ Drills, Diesel and Electric

other equipment available not listed above.

WILLIAM LUBRECHT, III
Construction Equipment
311 W. Diamond Ave. - Hazleton, Pa.
Phone: Gladstone 5-4941 or 5-9283

DRYERS: 4½x40, 5½x40, 6x60, 10x101, 8x9x100 25 ton MM Crash, Lorain Mc414 **CRANES** 30 ton Hoist & swinger. Also 150 ton Flory

CRUSHERS: 440, 936, 1016, 1020, 1040, 1524, 1836, 2036, 2436, 2540, 4836, 3042, 4248 **JAW.** #19, 37½ Kennedy, 16″, 18″, 20″, 30″, 36″ McCully, 2′4″ Traylor & 4TZ GYR. 1616, 3018, **DBL. ROLL** 2′ & 3′ **CONES.**

PLANTS: AW8I, Pitmaster, Pioneer 305. Others Cat D8800, D13000, D17000 GMC **DIESELS.**

MILLS: 4½x16″, 8x36″, 6x8, 6x14 Ball, 5x14 Rod. 3660, 4248, 3624, 4224, 2033, 4033 Hammer.

APRON FEEDERS: 2½x8, 3½x16, 4x14, 4½x16

WASHER: Eagle 14″x14′, 16″x12′, 7x30

SHOVELS & DRAG: Bucyrus 10B, 38B, 50B. NW 5, 6, 7, 80D. Link Belt LS50, LS90. Koehring 605. Marion 49A, 92. Lima 1201. Lorain 75, 820

Repres: Bonded Scale & Machine Co.
MID-CONTINENT EQUIPMENT CO. INC.
8321 Gannon St. Louis 24, Mo. Wydown 1-2826

FOR SALE
Re. Handling Clam Bucket 1¼ yd. Kessler. Like new.—$750.
1½ yd. Blaw Knox—$800.
2 yd. Kessler—$750.
Two Backhoe Attachment. Will fit Northwestern No. 6.
4500 ft. 18in. Belt. 90% new.
WESTERN EQUIPMENT SALES
P.O. Box 301 Ph. OLympic 2-1743 Kenosha, Wis.

MOTORS • GENERATORS
TRANSFORMERS
NEW • REBUILT
WORLD'S LARGEST INVENTORY
ELECTRIC EQUIPMENT COMPANY
Phone Station Collect GL 3-6783
P.O. Box 51, Rochester, New York

BRIDGES: Deck Girder type, two 54′ span and two 65′ span.

SAND SCREW: 24″ x 25′ steel box, motor, reducer, etc. New condition.

OVERHEAD CRANES: Morgan 40 ton, 55′ span, 230 volt, D.C. One 10 ton, 56′ span, 230 volt, D.C.

DRAGLINES: Monighan 8 yd., 160′ boom, diesel powered. Also, one 8 yd. electric. Monighan 5 yd., 120′ boom. Monighan 2-W, 85′ boom, diesel powered. Page 625, diesel, 150′ boom, 10 yd. bucket.

SHOVELS: Marion 4161, 5 yd. capacity, electric, with or without dragline equipment. Also, one 5 yd. with diesel electric power. Bucyrus Erie 54-B and Northwest 80-D, both diesel powered. Koehring ¾ yd. capacity, model 304, diesel powered. P & H 2 yd. shovel and crane, diesel powered. Lorain TL20 Moto Crane, ½ yd. capacity, with shovel digger, backhoe and crane boom.

COMPRESSORS: Fuller Rotary 350 H.P., 440 volt, 1850 CFM at 100 lbs. Ingersoll Rand PRE2, size 33 x 24 & 20½ x 24, with synchronous motor, 150 RPM. Chicago Pneumatic OCE, 26 x 15 x 18 with 400 H.P. synchronous motor, 2200 volts, 200 RPM.

BELT CONVEYORS: One 60″ x 170′ and one 60″ x 300′, complete with all mechanical parts, belt, supporting structures, motors and drive.

PAN CONVEYOR: 48″ x 110′ complete with motor, reducer, etc., heavy duty type, designed for rock.

SCALPING SCREENS: Robins heavy duty 6′ x 12′ and 6′ x 14′ with 15 and 25 H.P. motors, 220/440 volt. One Simplicity 5′ x 12′, 3 deck.

DRYERS & KILNS: Rotary Kiln 10′8″ x 104′, ¾″ welded plate, excellent condition. Two heavy duty 9′ x 76′ dryers with all equipment. NEW condition.

JAW CRUSHERS: 10″ x 20″, 15″ x 36″, 18″ x 30″, 24″ x 36″, 25″ x 40″, 30″ x 42″, 40″ x 42″, with or without motors. Can furnish crushers with or without apron or pan feeders.

GYRATORY CRUSHERS: One 20″ and one 30″.

BUCKET: Williams material handling, 1¼ yd. capacity.

BLAST HOLE DRILL: Ingersoll Rand Quarrymaster.

We Buy and Sell Equipment Throughout North and Central America

A. J. O'NEILL
Lansdowne, Pa.
Phila. Phones: MAdison 3-8300—3-8301

FOR SALE

Page Dragline, Model 618-239, new 1950, 140′ Boom, 2, 5 yd. Dragline Buckets, Diesel Engine, 320 H.P., Electric Swings, excellent condition, located: Tennessee.
Complete 100 K. W. Diesel Power Plant, located: Tennessee.
P & H Dragline, Model 1055 L.C., Serial #11370, Diesel Motor, Model 375, Serial 16B170, Electric Swings, 80′ Dragline Boom, 3½ Drag Bucket, Lite Plant, A-1 condition, location: New York state.
Osgood Crane, model 805, Caterpillar 1300 Diesel Engine, motor has 1100 hours, like new (Government surplus) can furnish hoe attachment.
Four—D8, Bulldozer 8R series, good running condition.
Two—D7 Cat Dozers, 3-T ser.
Two—D6, Cable Dozer, 9U series.
Two—D4, Cable Dozer, less than 1000 hours.
One—Caterpillar 12 Grader, 9K series.
Two—Galion Diesel Tandem Graders, rebuilt.
Koehring, ¾ yd. Crane, like new.
Four—Mississippi Bottom Dump Wagons, new, never used, will sacrifice all above, located: Cleveland, Ohio.

For further information write or call:

TESTA BROTHERS INC.
RICHMOND ROAD BE 2-5151 BEDFORD, OHIO

USED EQUIPMENT FOR SALE

January 15, 1957

1—Cedar Rapids Roller Bearing Jaw Crusher, Model 1036 WC, above is less than 1 year old and in excellent condition. Jaw opening 10" x 36". Serial 17078. Price new $7,800. Price $5,000.

1—20" Symons Cone Crusher with standard cone. Complete with all oil piping. Excellent condition. Price $2,400.

1—Bonded Single Roll Crusher, Model SR 19, with hopper and 6 groove 24" C section sheave. This unit in good condition. Suitable for coal and other similar material. Used about 18 months. Price new $1,600. Price $700.

1—Thomas Double Drum Hoist complete with 50 HP slip ring controller and slip ring motor. This is in very good condition. Price $1,200.

1—Model 0-19 LeTourneau tractor drawn Pan scraper, 12 yard capacity, new in 1955. Used about 8 months. Excellent condition. Price $5,500.

1—Haiss Flat Belt Conveyor, Model 481, width 14", capacity 70 tons per hour. This belt is mounted on steel wheels and has an air cooled Wisconsin engine. Length 35 Ft. Price $500.

1—Gear for a 5' diameter drum. 101 tooth, 5" face, cast iron spur gear made in two (2) sections for easy mounting. This gear is new. Price new $500. Price $300.

1—Cast Steel Pinion, 14 tooth, 6¼ face, 2-7/16" bore with tapered keyway to match the above spur gear. Price new $80. Price $50.

1—Jaeger 315' Compressor, Serial 979, good condition. Price $400.

SCIOTO LIME & STONE COMPANY, INC.

Box 338
Delaware, Ohio

FOR SALE

All steel, all electric, 8 Inch Hydraulic Dredge, with 40 foot Swintek digger, complete with discharge line, power cable, etc. Built in 1955. $37,500.00

PERRY SAND & GRAVEL CO.

Box 345 Perry, Iowa

FOR SALE

1 only Cat D13000 Power Unit (new)
1 only 4¼' Std. Symons Cone Crusher (new)
1 only 4' Short Head Symons Cone Crusher (new)

Subject to prior sale.

KENTUCKY-VIRGINIA EQUIPMENT CO.
4926 Southern Pkwy. Louisville, Ky.

FOR SALE

1—24" Dia. x 18" Face Head Pulley, complete with shaft and bearings.
1—18" Dia. x 17" Face Belt Saver Foot Pulley, complete with bearings.
7—5" Dia. x 18" length Idler Rollers w/bearings.
110'—8 ply 16" wide Elevator Belt.
100 or more used Buckets.
1—48" Telsmith Sand Drag, complete with back gear motor and drive w/starter and 5 H.P. 440V-60C-3 Ph.
1—3' x 10' Seco 3½ Deck Screen, complete with motor 7½ HP. and drive, less starter and number of new screens.
1—2' x 5' Diester Single Deck Vibrator Screen.
4—#6 Telsmith Sand Tanks.

ALL EQUIPMENT IN A-I CONDITION. REPLACING IT WITH BIGGER EQUIPMENT TO INCREASE CAPACITY.

SYRACUSE SAND AND GRAVEL COMPANY, INC.
100 Onondaga Hotel Lobby Syracuse, New York
Plant—Nedrow, New York

MAGNETIC PULLEYS

6—Dings Electro, 220 volts D. C. 12" dia., 22" face, 2" shaft, length of shaft 50".

5—Dings Electro, 220 volts D. C. 12" dia., 16" face, 34" shaft, shaft dia. 2".

Used, but in good condition.

PHILADELPHIA TRANSFORMER CO.
Box 566 Dalton, Pa.
Phone 3-4811

EUCLIDS

15-Ton Rear Dump
1—91FD; 2—25FD; 4—27FD; 6—2FD; 2—5FD; 1—4FD.

Priced from $6,000.00 up to $20,000.00

ANDERSON EQUIPMENT COMPANY
Box 1737 Pittsburgh 30, Pa.
Phone: LEhigh 1-6020

DIESEL GENERATOR—99% NEW

875 KVA Chicago Pneumatic, 8 cylinder, 327 RPM. Complete starting equipment and switchgear. In stock. Immediate shipment.

ALJON ELEC. DIESEL CO.
904 Pacific St., Bklyn. 38, N. Y.

WILLIAMS HAMMERMILL

This is a big #50 Williams Slugger Type Hammermill. This mill is a year old and in excellent condition. Cost $8,600.00 new.

FOB Nashville, Tenn. $5,000.00

EUCLID-TENNESSEE, INC.
720 Murfreesboro Rd., Nashville, Tenn.
Tel. ALpine 6-1648

FOR SALE

MANITOWOC Dragline, 120' boom, 5 yd. bucket. Price on cars $84,000.00

BUCYRUS ERIE Dragline, 140' boom, 8 yd.

NORTHWEST model 80D shovel, 2½ yd., new in 1953, Price $26,300.00 on cars

NORTHWEST model 80D shovel & Drag new in 1951, Price $30,500.00 on cars

BUCYRUS ERIE Shovel 54B 2½ yd., 2½ yrs. old

WILLIAM LUBRECHT, III

Construction Equipment

311 W. Diamond Ave. Hazelton, Pa.
Phone: Gladstone 5-4041 or 5-0253

ROLL CRUSHER

Pioneer 30" x 18", Serial #30-210 with drive for electric motor but less motor.

Price: $2,500.00, F.O.B. Cleveland

THE McLEAN COMPANY
3525 Lakeside Ave. - Cleveland, Ohio

For best results . . .

Advertise in

PIT AND QUARRY'S

BROADCAST SECTION

FOR SALE

1—42x40	Farrell Jaw Crusher
30x42	Buchanan Jaw Crusher
18x32	Telsmith Roller Bearing Jaw Crusher
14"x26"	Acme Jaw Crusher
10"x20"	Blake Type Jaw Crusher
9"x36"	Telsmith Wheeling Roll Br. Jaw Crusher
#32	Telsmith Gyratory Crusher
28"	Telsmith Intercone Crusher
	Double Chain Bucket Elevator, Bucket Size 20", 60' Centers
10'	Tandem Rome Diesel Scraper
1—100 K.W.	G.M.C. Diesel Generator Set
1—150 K.W.	G.M.C. Diesel Generator Set
14"	Telsmith Gyratory Crusher
30"x42"	Pioneer Jaw Crusher and Feeder
20x36	Pioneer Jaw Crusher and Feeder
36"x30'	Feeder
10"x36"	Cedar Rapids Crusher
10'x30"	Telsmith Rolls
4'x12'	3-Deck Cedar Rapids Screen
4'x10'	2-Deck Cedar Rapids Screen
10—16	Gradier Jaw Crusher
10—20	Jaw Crusher
10"	Telsmith Gyratory Crusher

BLUE BALL MACHINE WORKS

BLUE BALL, PA.

FOR SALE

1—10-36 Telsmith Jaw Crusher
1—20 inch Symons Cone Crusher
1—13-20 New Holland Hammermill
All are in excellent condition.

LEBANON STONE CO.
Lebanon, Ky.

FOR SALE

2—12 ton, 36" Gauge, Model JLA Plymouth locomotives—Serial #5119-5120

1—10 ton, 36" Gauge Model DLC, Buda Engine Plymouth locomotive Serial #3285

1—10 ton, 36" Gauge JLA Plymouth locomotive

6—6 Cubic Yard 36" Gauge all steel, Pressed Steel Car Co. side dump cars, Timkin Bearings

8—5 Cubic Yard, 36" Gauge, Square side dump cars, Plain Bearings. 50 tons, 40 lb. rails.

FOLEY & BEARDSLEE

CLARKSTON, MICH.

FOR SALE

Swintek Ladder—35 ft.; 225 Hp GMC Diesel Motor; Barge and all accessories. All in good condition. Priced to sell.

GREENWICH SAND & GRAVEL CO.
Greenwich, Ohio Phone 3285

FOR SALE

FEEDERS Two 24" x 10'6" apron type with sides.

CONVEYORS One apron type 36" x 54' and one 30" x 33'.

ELEVATORS One 40' centrifugal in 13 x 42" casing. One open inclined elevator 90'.

GRIZZLY ROLLS Six rollers 12" x 36" in side frames, with sprockets and chains.

COLLECTORS Ducon wet and Ducon dry types. Capacity 10,000 CFM each.

CLASSIFIER Dorr 26' bowl type with rakes. Capacity 5 to 10 TPH.

HAMMERMILLS Jeffrey 42 x 24 and Penna. S-6.

G. & W. H. Corson, Inc.
Plymouth Meeting, Pa.

FOR SALE
ONE BRAND NEW 16" SUPERIOR McCULLY GYRATORY CRUSHER.
NEVER BEEN USED
DUE TO CHANGE OF PLANS.
PRICE $26,000
F.O.B. McCOOK, ILL.
DOLESE & SHEPARD CO.
Route 66 & East Ave. Hodgkins, Ill.
Phone: FLEETWOOD 4-2800
Ask for Mr. Doody

MOTORS AND GENERATORS
All sizes, new and rebuilt. Starters, accessories, pulleys and repair parts. Gear motors, Falk Shaft mounted Speed Reducers, couplings and V-belt drives.
EXPERT REPAIR SERVICE
NUSSBAUM ELECTRIC CO.
220 E. Douglas Avenue Fort Wayne, Ind.

Plymouth 35-ton locomotive, std. gauge, gas.
Johnson-Erie concrete batching, mixing plant.
Lima 1201 crane-shovel-dragl, diesel., 3½-yd
Euclid diesel trucks; 6—Koehring Dumptors.
Kilns-Dryers, 10½x101, 9x140, 6'x60'.
Shovels, cranes, dragls., 1⅛ to 15 yds.
Crushers, jaw and gyratory (5), large.
Erie readymix & Butler bulk cement plants.
H. Y. SMITH CO.
828 N. Broadway Milwaukee 2, Wis.

FOR SALE
Caterpillar Diesel Engine
D-364 - Serial #19B59
This engine is in A-1 condition. It has been completely overhauled and is complete with Twin Disc. Clutch Model EH-121-P00, Spec. No. 22182. Ideal for Shovel - Dragline or Power Unit.
The Masteller Coal Co.
RFD 4, Keyser, West Virginia

FOR SALE
Used Allis-Chalmers 16" McCulley S.G. Crusher without motor. Excellent running condition. Price $5,000.00.
Also available, at additional cost, new and used spare parts.
OLD COLONY CRUSHED STONE CO.
Vernon St. Quincy 69, Mass.

TOURNA ROCKERS
2—35-Ton LeTourneau Rear Dump. Worked 1600 Hours.
1—50-Ton LeTourneau Rear Dump. Worked 2000 Hours.
All Excellent Condition
ANDERSON EQUIPMENT COMPANY
Box 1737 Pittsburgh 30, Pa.
Phone: LEhigh 1-6020

"The Origin and Nature of Ore Deposits"
by R. T. Walker and W. J. Walker.
The Walker Association, Box 1068, Colorado Springs, Colorado.
$6.50 postpaid in the United States
$6.75 postpaid in Canada and Mexico
$7.00 postpaid in other countries
On request, will be sent on approval.

FOR SALE
New Shovel Crown Chain, Diamond 480 for a Lorain L 80 or L 820.
One-half price.
BROWN BROTHERS CONSTRUCTION
Box 228 Manhattan, Kans.

FOR SALE
Fuller-Kinyon Pumping System for Bulk Cement complete.
CONCRETE SUPPLY CO.
1212 S. 13th St. Louisville 10, Ky.

FOR SALE
Farrell-Bacon 13 x 48 Jaw Crusher. Machine in new condition. With or without power. Machine may be seen in operation.
GALLO ASPHALT CO.
1000 Springfield Ave. Irvington, N. J.
Phone Essex 3-0055

SHOVEL, ¾ YD. LIMA PAYMASTER
This shovel in excellent condition, bought new 1955, 15 mos. old, has had 12 mos. use. Powered by Cummins HRC Diesel Engine. Sells new delivered Nashville approx. $28,000.00.
Price FOB Nashville, Tenn.
$16,000.00
Will finance to responsible party.
EUCLID-TENNESSEE, INC.
720 Murfreesboro Rd., Nashville, Tenn.
Tel. ALpine 6-1648

UNITIZED PLANT
Cedarapids Crushing Plant, consisting of:
AAAA 2540 Primary Jaw Crusher w/feeder conveyor, drives, etc. and D13000-X Cat. engine.
BBB 1036 Jaw Crusher Scalping Unit w/screens, conveyor, etc. and D8800-X Cat. engine.
CCC 4024 Secondary Roll Crusher plant w/ screens, conveyors, etc. and D17000-X Cat. engine.
A complete plant in running condition.
F.O.B. Syracuse, N.Y. $40,000
SYRACUSE SUPPLY COMPANY
SYRACUSE, N. Y.
PHONE 4-3157
(Cedarapids and Caterpillar Dealer)

FOR SALE
1—Drill—Blast Hole—No. 44 Loomis Machine Company No. 14517, Crawler mounted, 20 H.P., Electric 3/60/440 motor, wire line, steel frame and mast with tools, 4½" stem and parts.
2—Locomotives, 8 and 12 ton, 36" gauge Plymouth gasoline
2—Hammer mills—24" x 24" Eagle Crusher Company.
for further information contact
J. H. CLEMENTS
BASIC INCORPORATED
MAPLE GROVE, OHIO
POST OFFICE, FOSTORIA, OHIO

PIT AND QUARRY GOES WHERE SALES ARE MADE

You too can dispose of your surplus equipment at very small cost.

IDLE EQUIPMENT + P & Q = CASH

Practically every day we receive letters from readers telling us they are seeking used equipment. A good way to get back a large part of the money you spent for machinery you are no longer using, is to sell it through the Classified Sections of Pit and Quarry and The Concrete Manufacturer . . . The largest classified advertising section serving the Industry.

PIT AND QUARRY CLASSIFIED SECTIONS
431 South Dearborn St. Chicago 5, Illinois

Index to Advertisers

A

A A Wire Products Co. 229
Admiral Alloy Steel Corp. 166
Ajax Flexible Coupling Co., Inc. 134
Allied Steel & Tractor Products, Inc. 146
*Allis-Chalmers Mfg. Co. 13, 155
*Allis-Chalmers Mfg. Co. Construction Machinery Division 123, 273
American Air Compressor Corp. 263
American Chain & Cable Co., Inc. 140
American Hoist & Derrick Co., Crosby Laughlin Lebus 35
*American Manganese Steel Div. American Brake Shoe Co. 8, 160
Anaconda Wire & Cable Co., Sub. of Anaconda Copper Mining Co. 40-41
Arkell & Smiths 141
Athey Products Corp. 67
Atlas Powder Co. 157
Austin-Western Co. 177
Automatic Spring Coiling Co. 253
Automotive & Aircraft Division, American Chain & Cable Co., Inc. 140

B

*Babcock & Wilcox Co. 174
Baldwin-Lima-Hamilton Corp., Construction Equipment Div.—Lima Works 177
Baltimore & Ohio Railroad 129
*Barber-Greene Co. 61
*Bergen Machine & Tool Co., Inc. 197
*Besser Co. 186, 201-204, 245
*Bethlehem Steel Co. 271
Black Bros. Co., Inc. 167
*Blaw-Knox Co. 217
Bonded Scale & Machine Co. 261
Brill Equipment Co. 263
Broadcast Section 260-269
Brook Motor Corp. 154
Bucyrus-Erie Company 19
Buffalo Forge Co. 27
Buffalo Slag Co., Inc. 264
Burns & Russell Co. 189
*Butler Bin Co. 195

C

Carolina Tire Co. 162
Carpenter Manufacturing Co. 246
Caterpillar Tractor Co. 75, 95
Chain Belt Co. 18, 231-232
Chase Foundry & Mfg. Co. 243
Chevrolet Motor Div., General Motors Corp. 91
Chrysler Corp. 179
Cities Service Oil Co. 59
*Clark Equipment Co. 48-49
Cleaver-Brooks Co. 184
Cleveland Vibrator Co. 38
Clipper Mfg. Co. 242
*Colorado Fuel & Iron Co. 149, 163
Colorado Iron Works Co. 135
Columbia Machine Works 213
Columbia Southern Chemical Corp. 255
Combustion Engineering, Inc., Raymond Division 20
Concrete Controls Corp. 223
Concrete Machinery Co., Inc. 234
Concrete Manufacturer Classified Section 249-251
Construction Equipment Div.—Lima Works, Baldwin-Lima-Hamilton Corp. 177
*Construction Machinery Co. 256
*Continental Gin Co. 142
Cook & Ingle Concrete Products Co., Inc. 254
Crosby Laughlin Lebus, American Hoist & Derrick Co. 35
*Cross Engineering Co. 161

D

Davis Co., Frank D. 242
Deere Industrial Division, John 125
Denver Equipment Co. 3
Dodge Truck Div., Chrysler Corp. 179
Dow Chemical Co. 182
Du Pont de Nemours & Co., E. I. 148
Dur-O-wal 253

E

*Eagle Crusher Co. 51
*Eagle Iron Works 25
Economy Forms Corp. 192
Edick Laboratories 224
Ehrsam & Sons Mfg. Co., J. B. 21
Eighmy Equipment Co. 264
Eimco Corporation 98
Equipment Corp. of America 263
Euclid Division, General Motors Corp. 45

F

*Falk Corporation 39
Famalette Equipment Co., Frank 265
Farval Corporation ....Inside Back Cover
Flexible Steel Lacing Co. 58
Foote Bros. Gear & Machine Corp. 144
Ford Motor Co. 36-37
Forney's Inc. 250
Forrer's Division, Spray-O-Bond Co. 237, 248
Frank, M. K. 265
Fruehauf Trailer Co. 62-63
*Fuller Company 218

G

Gar Wood Industries, Inc. 80-81
Gates Rubber Co. 31
*General Electric Co. 86-87
*General Electric Co. Communications Equipment 207
General Engines Co., Inc. 246, 250
General Motors Corp. 45, 91
Gilbert Co., L. M. 167
Gilson Screen Co. 156
GO Corp. 193
Goodrich Industrial Products Co., B. F. 274
Goodyear Tire & Rubber Co. 7
Gordon's Concrete Products 251
Gorman-Rupp Co. 112
Griffin Corp., Larry 190
Gwynne, Inc., J. H. 254

H

H & L Tooth Co. 164
Hannon & Sons, F. R. 56
*Hardinge Co., Inc. 4
Harnischfeger Corporation 130-131
Hazemag 175
Heat & Power Co. 266
Heidenreich, E. Lee, Jr. 260
Heineken, Inc., W. P. 266
*Hendrick Mfg. Co. 164

*See also Detailed Information in 1956 Pit and Quarry HANDBOOK and CONCRETE INDUSTRIES YEARBOOK.

WIRE ROPE AT WORK

One of the most interesting hoist installations in the country is now operating at the Cliffs Shaft Mine, owned by Cleveland-Cliffs Iron Company, Ishpeming, Mich. At the new "C" shaft, two friction-drive Koepe hoists raise and lower the skips, and a third takes care of the man and service cage. Speed for the skips is 1500 ft per min; for the cage, 1000 ft per min. Addition of these facilities has made it possible to hoist the mine's ore output in one shift per day.

The Koepe hoists, first installation of this type in the United States, are of the four-cable type using wire ropes 1 in. in diam. Balancing tail ropes are also employed on each unit. For the hoist cables, Bethlehem 6 x 27 flattened strand was chosen. For the tail lines, Bethlehem designed a non-rotating Seale. Both these classes of rope have given excellent service, and they demonstrate clearly the importance of careful selection for specialized applications.

Bethlehem Steel Company, Bethlehem, Pa. On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation. *Export Distributor:* Bethlehem Steel Export Corporation

Mill depots and distributors from coast to coast stock Bethlehem rope for the following industries and numerous others:

MINING • QUARRYING • CONSTRUCTION • EXCAVATING • PETROLEUM • LOGGING • MANUFACTURING

Hendrix Mfg. Co. 259
Hough Co., Frank G. 136-137
Hudson Pulp & Paper Corp. 65
Hydrotile Machinery Co. 250
*Hyster Company 227

I

*Ingersoll-Rand Co. 145
*Iowa Manufacturing Co. 47
Irvington Form & Tank Corp. 246

J

Jaeger Machine Co. 208-209
Jeffrey Mfg. Co. 6
Johnson Co., C. S. 126-127, 251

K

*Kennametal, Inc. 42
*Kennedy-Van Saun Mfg. & Engrg. Corp. 14-15
Kent Bag Co., Inc., Percy 162
Kent Machine Co. 200
Koehring Co. 126-127

L

Lackey, Inc., W. H. 219
Laclede-Christy Division,
H. K. Porter Company, Inc. 150
Large Engineering Co., H. B. 132
LEAP Concrete, Inc. 236
Lehigh Portland Cement Co. 191
Leschen Wire Rope Division,
H. K. Porter Company, Inc. 151
LeTourneau-Westinghouse Co. 159, 173, 241
*Link-Belt Company 1, 133
*Link-Belt Speeder Corp. 108-109
*Lith-I-Bar Co. 257
Lubrecht III, William 267
*Ludlow-Saylor Wire Cloth Co. ..... Inside Front Cover
Lukens Steel Co. 72

M

Mace Company 242
Mack Trucks, Inc. 171
Manitowoc Engineering Co. 180
Marvel Engineering Co. 240
Massey-Harris-Ferguson, Inc.,
Work Bulls Division 70
*Master Builders Co. 258
McDermott Bros. Co. 167
McNamar Boiler & Tank Co. 225
Memphis Equipment Co. 192
Midwest Diesel Power Co. 268
Monarch Road Machinery Co. 238

N

New York Engineering Co. 54
New York Trap Rock Corp. 263, 266
*Nordberg Manufacturing Co. 53
Norfolk & Western Railway 168
Northwest Engineering Co. 5

O

Olsen Corp., Gene 193
Omaha Standard 161
O'Neill, A. J. 267
Oswalt Engineering Service Corp. 243

P

*Page Engineering Co. 43
Pennsylvania Drilling Co. 260
*Pettibone Mulliken Corp. 147
Pioneer Rubber Co. 243
*Porter Company, Inc., H. K. 150, 151, 152
Praschak Machine Co. 248
PreCaster, Inc. 239
Presto Brick Machine Corp. 246

Q

*Quaker Rubber Division
*Quaker Pioneer Rubber Division,
H. K. Porter Company, Inc. 152
"Quick-Way" Truck Shovel Co. 111
Quinn Wire & Iron Works 236

R

Radio Corporation of America 161
*Raymond Division,
Combustion Engineering, Inc. 20
Reichard-Coulston, Inc. 237
Remington Arms Co., Inc. 143
Reo Motors, Inc. 104-105
*Research-Cottrell, Inc. 68-69

S

Sarasota Engineering Co., Inc. 235
Sauerman Bros., Inc. 138
Schaffer Poidometer Co. 58
Scioto Lime & Stone Co. 268
*Screen Equipment Co. 117
Sheffield Steel Corp. 153
Side-O-Matic Unloader Corp. 199
SKF Industries, Inc. 172
*Smidth & Co., F. L. 11
Smith Engineering Works 29
Smith, Inc., L. B. 263
Solvay Process Division,
Allied Chemical & Dye Corp. 245
Southern Tire Co. 166
Spencer Chemical Co. 169
Spillman Co., R. L. 251
Spray Products Corp. 166
Standard Dry Kiln Co. 230
Stanhope, Inc., R. C. 265
*Stearns Manufacturing Co., Inc. 183
*Stephens-Adamson Mfg. Co. 165
Stow Mfg. Co. 252
Straub Mfg. Co. 57
*Sturtevant Mill Co. 176
Swabb Equipment Co., Inc., Frank 264
*Syntron Co. 9

T

Texas Company ..... Outside Back Cover
Timken Roller Bearing Co.,
Rock Bit Division 139
Tool Steel Gear & Pinion Co. 33
*Traylor Engrg. & Mfg. Co. 170
Truck Mixer Manufacturers Bureau 226

U

United States Rubber Co. 55
*United States Steel Co. 16-17
*Universal Door Carrier, Inc. 253
*Universal Engineering Corp. 147
*Universal Vibrating Screen Co. 60
Unverzagt & Sons, G. A. 262

W

Wagner Iron Works 101
Waylite Company 247
Wenzel Machinery Co. 266
Western Machinery Co. 34
Westinghouse Transit Mixer Division,
LeTourneau-Westinghouse Co. 241
*Wickwire Spencer Steel Div.
Colorado Fuel & Iron Corp. 149
*Williams Patent Crusher & Pulverizer Co. 113
Williams, Roger F. 251
*Wood Co., Chas. E. 167
Work Bulls Division,
Massey-Harris-Ferguson, Inc. 70

*See also Detailed Information in 1956 Pit and Quarry HANDBOOK and CONCRETE INDUSTRIES YEARBOOK.

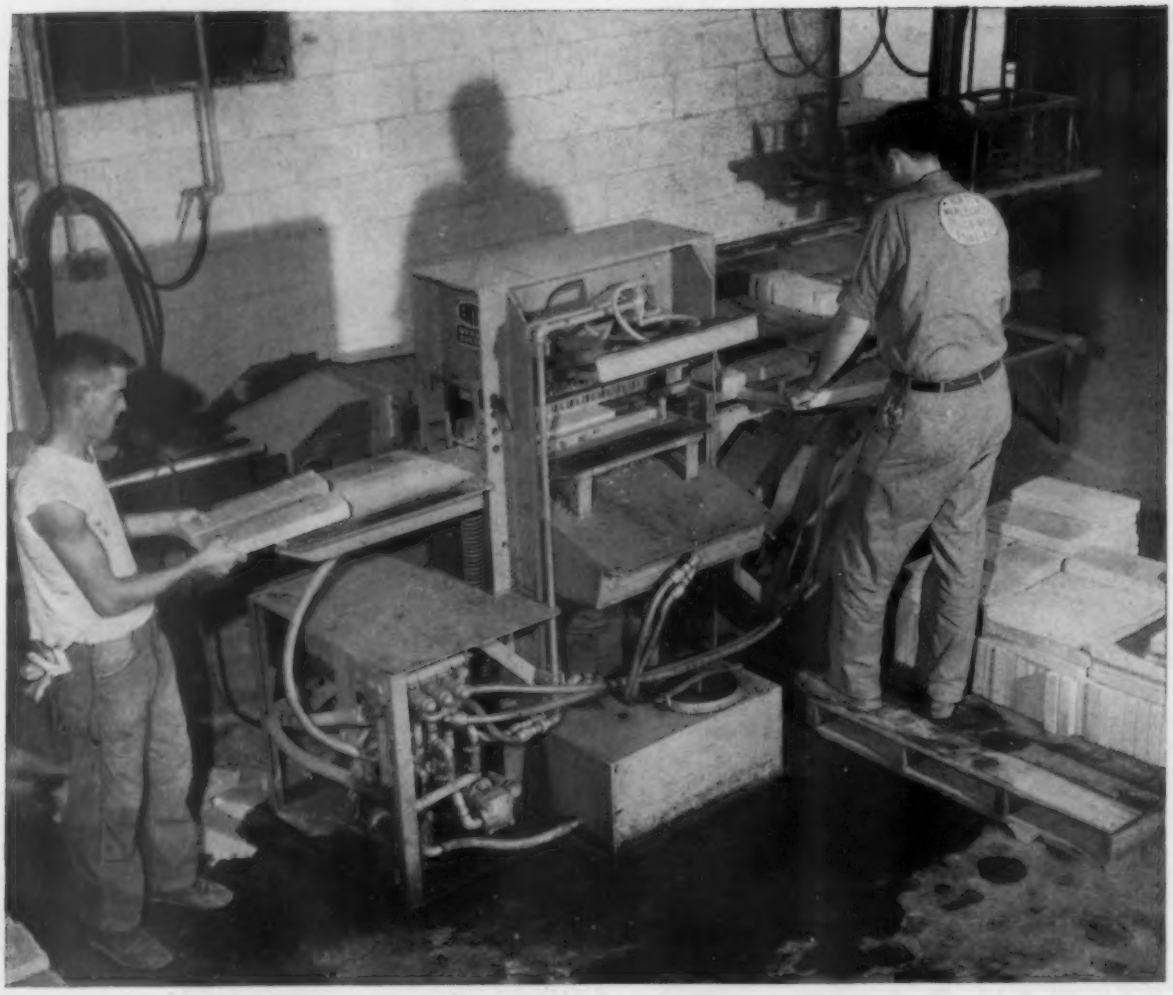
STRIP AND RECLAIM ECONOMICALLY *with help like this . . .*

- **MOST POWER PER YARD . . . most power per pound in its class**
- **MOVES FULL LOADS AT FULL SPEED**
- **WIDE OVERLAP IN GEAR RANGES…for easy shifting, smooth acceleration**
- **CURVED BOWL BOTTOM . . . offset cutting edge . . . for fast, full loading**
- **HIGH APRON LIFT . . . positive, clean ejection**

This is the Allis-Chalmers TS-360 . . . a motor scraper that has proved it can strip overburden profitably . . . and reclaim worked-out areas in the same operation. As demands for greater efficiency increase, be ready with the best . . . an Allis-Chalmers TS-360. Allis-Chalmers, Construction Machinery Division, Milwaukee 1, Wisconsin.

ALLIS-CHALMERS *Engineering in Action*

B.F.Goodrich report:



Machine cuts stone like paper

B. F. Goodrich improvements in rubber brought extra savings

Problem: This machine that cuts stone like a paper cutter is run by hydraulic power. Pressure as great as a ton for each square inch shoots through hydraulic lines.

Years ago, when hydraulic power was developed for all kinds of powerful machines, a flexible connection was needed. Rubber hose wasn't strong enough. Vibration wrecked metal tubing. For a while it seemed there would never be anything that would stand the sudden surges of hydraulic oil and still be flexible.

What was done: B. F. Goodrich engineers began experiments for stronger hose. They developed one that combines rubber for flexibility, steel for strength. Using steel wire, almost as fine as hair, they found a new way of braiding it, using a half mile of wire for every foot of rubber hose.

Savings: B. F. Goodrich hose has been in use on these stone-cutting machines over four years now, with no leaks, no bursts. So far as anyone knows the hose will last as long as the machines.

Extra benefits: B. F. Goodrich has made many other improvements. The tube is special to allow couplings to grip firmly, stay on longer without leaking. This kind of tube costs more to make but gives extra value far beyond cost.

Where to buy: Your B. F. Goodrich distributor has full information on these improvements, plus exact specifications on the hose described here. And, as a factory-trained specialist in rubber products, he *can* answer your questions about all the rubber products B. F. Goodrich makes for industry. *B. F. Goodrich Industrial Products Co., Dept. M-856, Akron 18, Ohio.*

B.F.Goodrich

INDUSTRIAL PRODUCTS

This new Guide to Gear Lubrication saves time, money and headaches

FARVAL—
Studies in Centralized Lubrication
No. 195

● If you design, build or use equipment with large gears, you will want Bulletin 60-A. Its 8 pages provide full information on Farval Spray Lubrication Systems available for manual or automatic operation.

Farval Spray Valves are completely flexible. They can be used alone, in panel set-ups mounted on gear housings, or as part of a Farval Dualine System—wherever compressed air is available. As with standard Dualine valves, the spray can be operated as often as needed to deliver any amount of oil or grease—on gears, slide surfaces or other areas needing lubrication.

Thousands of Farval Spray Valves are used in many industries. You, too, should enjoy their benefits. Write today. You will receive a copy of Bulletin 60-A and the name of the Farval representative in your area who can help you select the proper equipment for your machines. The Farval Corporation, 3280 East 80th Street, Cleveland 4, Ohio.

Affiliate of The Cleveland Worm & Gear Company, Industrial Worm Gearing.
In Canada: Peacock Brothers Limited.

Proved in 30 years of service, Farval manual and automatic centralized lubrication systems protect millions of industrial bearings. Wherever you see the familiar Dualine valve manifolds, dual lubricant lines and central pumping station, you know a machine is being properly lubricated.

GUARD BEARINGS against their two worst enemies

● *Wear and rust are your bearings' worst enemies—but you can lick them both with* ***Texaco Marfak***

Photo courtesy Iowa Manufacturing Company

One large manufacturer ships all his contractors' equipment *Marfak*-lubricated and recommends Texaco exclusively by instruction plate. He says:

"Our long experience shows *Texaco Marfak* to be the best lubricant for the heavy duty service, shock loads and high temperatures our equipment often meets on the job."

For wheel bearings, use *Texaco Marfak Heavy Duty 2*. It, too, protects against wear and rust—seals out dirt and moisture, seals itself in, assuring safer braking and thousands of extra miles between repackings. No seasonal change is required.

For a multi-purpose lubricant, use *Texaco Marfak Heavy Duty Special 2*. It's a lithium-base grease that pumps easily, lubricates effectively regardless of temperature, resists water washing and stands up in severest service.

For your air compressors, use *Texaco Regal Oil R&O*. It keeps systems clean, lines clear—assures dependable performance. For wire rope and open gears, use *Texaco Crater* or (for spray application) *Texaco Crater X Fluid*.

A Texaco Lubrication Engineer will gladly help you select the proper lubricants for all your equipment. Just call the nearest of the more than 2,000 Texaco Distributing Plants in the 48 States, or write:

☆ ☆ ☆

The Texas Company, 135 East 42nd Street, New York 17, N. Y.

TEXACO **TEXACO Lubricants and Fuels**
FOR ALL CONTRACTORS' EQUIPMENT

TUNE IN . . . METROPOLITAN OPERA RADIO BROADCASTS EVERY SATURDAY AFTERNOON

EUGENE B POWER
UNIVERSITY MICROFILMS
313 N FIRST AVE
ANN ARBOR MICH